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24 February 1986

China Report

ECONOMIC AFFAIRS

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CHINA REPORT
ECONOMIC AFFAIRS

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NATIONAL POLICY AND ISSUES

VICE MINISTER ON PROGRESS OF URBAN REFORM

OW302154 Beijing XINHUA Domestic Service in Chinese 1140 GMT 30 Jan 86

[By reporter Yu Youhai]

[Excerpts] Beijing, 30 Jan (XINHUA)--The reform of China's urban economic structure has entered a new situation. It has now begun important shifts from experiments at selected localities to practice throughout the country, from reforming microeconomic activities to reforming macroeconomic activities, and from reforming the economic base to reforming the superstructure.

This is what He Guangzhui, vice minister of the State Commission for Restructuring Economic System, told a meeting of the central departments concerned today. He said at the meeting: Our reform of the urban economic structure, which focuses on invigorating enterprises, can be roughly referred to in two stages. Before the 3d Plenary Session of the 12th CPC Central Committee in October 1984, it was in an exploration stage. Since that plenary session adopted the "Decision of the CPC Central Committee on reform of the Economic Structure," it has entered a new stage of all-around reform.

Information provided by various localities shows that after enterprises obtained added power of decision and substituted tax payment for profit delivery, the system of economic responsibility which simultaneously gives consideration to their responsibility, power, and benefit is being perfected. Thanks to the reform measures taken by the state, large and medium-sized enterprises which previously displayed little vigor have become more vigorous. Sixty-one cities are carrying out a comprehensive reform of their economic structure in conjunction with the reform of their enterprises. We have taken an important step in reforming the price and wage systems. To various extents, we have also reformed the structures of commerce, materials management, and planning. He Guanghi analyzed the situation that held that in the last few years, particularly last year, our strides in reform were bigger and our achievements in reform were better than expected. We also held that we have won the first battle and that China's urban economic structure is undergoing five major gratifying changes:

1. The system of ownership in China which was in the past basically a unitary system of public ownership unsuitable to the development of the productive forces is gradually becoming a system for common development of socialist

public ownership and diverse economic forms and operations, with the socialist public ownership as its main body. In the last few years, while we have kept the state-owned economy in a dominant position, we have rapidly developed the collective and individual economies in both urban and rural areas, and we have also developed Chinese-foreign joint ventures and enterprises with exclusive foreign investment. In addition, some organizations with different ownership systems have entered into partnership in running economic associations.

2. In their relationship to the state, enterprises have begun to change from being subordinate to administrative organs to being relatively independent commodity producers or marketers. Some enterprises have changed from being producers to being both producers and marketers.

3. In the market, such practices as the mandatory state purchase, unified state purchase and marketing, rationing, and planned distribution, have begun to become purchase by contract, buying and selling at negotiated prices, free purchase and marketing, and other forms of business transaction.

4. In economic relations, the situation of being closed to foreigners and of division and blocade among various departments and region is changing towards an open economy.

5. In the management of macroeconomic activities, we are reforming the traditional, highly centralized management system which mainly relies on administrative measures. We have reduced the scope of mandatory planning, and we have brought into better play the role of finance, taxation, banks, and other economic levers and legal means. We have gradually streamlined economic management departments at all levels, delegated more power to the power levels, and readjusted and consolidated some administrative companies. As a result, the management that mainly relies on direct control has begun to become a management which mainly relies on indirect control.

/12624
CSO: 4006/678

PROVINCIAL AFFAIRS

BRIEFS

YUNNAN RESIDENTS FAVOR REFORMS--Kunming, January 29 (XINHUA)--A recent statistically valid survey in Yunnan province in southern China found most city residents in favor of China's recent economic reforms and opening to the outside world. Local officials said here today 92.4 percent of the 3,735 surveyed support the reforms and 91.9 percent want the country to continue its open policy. Both were begun in 1979. According to those surveyed, the top three urban problems are price increases, the quality of service in commercial and public enterprises and crime, the officials said. The survey was conducted by the provincial statistics bureau among a primarily urban population from mid-December last year to early this month. Those surveyed include workers, engineers and technicians, scientists and experts, athletes, government officials, college students and self-employed workers. [Text] [Beijing XINHUA in English 1651 GMT 29 Jan 86 OW] 12624

CSO: 4020/209

ECONOMIC PLANNING

HEBEI PLANS TO DEVELOP MOUNTAINOUS, COASTAL, UPLAND AREAS

SK290848 Shijiazhuang Hebei Provincial Service in Mandarin 2300 GMT 15 Jan 86

/Text/ Following the decision made by the provincial CPC Committee and the provincial People's Government with regard to developing the mountainous, coastal, and upland areas, the relevant provincial-level departments and bureaus have conducted earnest study and made work arrangements in a short period of time.

On 15 January, the principal responsible comrades of the 26 departments and bureaus respectively delivered their reports before the leading personnel of the provincial People's Government with regard to their concrete opinions on developing the mountainous, coastal, and upland areas and helping backward areas become wealthy.

In his report, the responsible comrade of the provincial Communications Department put forward that during the implementation period of the Seventh 5-Year Plan, efforts should be made to thoroughly revamp the highways of the mountainous, coastal, and upland areas and to have more than 80 percent of the townships throughout the province enjoy passenger bus service.

The provincial Finance Department will establish funds at the provincial level for developing these areas, will appropriate a certain volume of funds each year for helping poor households, and will give preferential treatment in agricultural tax exemptions and reductions to poor townships.

In his report, the responsible comrade of the provincial Agriculture Department, while referring to the issue of formulating plans for agricultural crops, stated: A good job should be done in concentrating on readjusting the production structure in these areas, and centering on the popularization of 23 agricultural technological items in order to meet the needs of developing the economy in these areas.

The provincial Scientific and Technological Association has made good preparations for successfully holding training classes for 3.15 million middle school graduates in these areas in order to enable each one of them to master practical new techniques.

The provincial bank and the provincial agricultural bank pledged to vigorously support these areas to develop their economies.

In addition, units of the provincial Forestry Department, the provincial Public Health Department, the provincial Commerce Department, the provincial Metallurgical Department, and the provincial Civil Affairs Department also made their work arrangements for this purpose.

After hearing their reports, Comrade Li Feng praised the leading personnel of the departments and bureaus who had taken early steps, gone into quick action, and put forward concrete opinions and measures in a short period of time for developing these areas. This represents a favorable change in leadership workstyle. He urged the leading cadres of various units to seize an opportunity to visit these areas in order to learn about the people's conditions and the practical problems of the masses.

In referring to the issue of implementing their measures, Comrade Li Feng pointed out: Efforts should be made to properly take up the work in a down-to-earth manner, to implement the measures one by one, and to deal with problems one by one. In developing the mountainous, coastal, and upland areas, we should take steps in a down-to-earth manner and with a farreaching view. We should exert all-out efforts to support the development of these areas in the fields of manpower, financial sources, and material supply. In conducting new projects for development, we should take shortcuts as much as possible in order to invest less in them and to turn out more profits.

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CSO: 4006/656

AGGREGATE ECONOMIC DATA

COOPERATION BOOSTS HUNAN RURAL INDUSTRY

OW230927 Beijing XINHUA in English 0752 GMT 23 Jan 86

[Text] Changsha, January 23 (XINHUA)--Earnings from rural industry in Hunan province, central China, jumped 47.5 percent in 1985 thanks to the growing inter-regional and inter-departmental cooperation.

The growth rate is higher than the national average of 35 percent. China's rural enterprises produced an output value of 230 billion yuan last year.

At a recent meeting, vice-governor Cao Wenju said that the cooperation helps make better use of funds, technology and personnel.

He commended the provincial capital of Changsha, where 49 urban enterprises cooperated with 108 rural factories to manufacture 267 products, increasing the output value to 130 million yuan.

The rural enterprises acquired 1,995 technicians, 16.6 million yuan and 385 machines through the cooperation while offering worksites, labor and profits-sharing with their urban counterparts.

While helping peasants increase their incomes, urban enterprises have also expanded production scale and spare efforts to develop new and competitive products through cooperation.

For example, Changlegang village in Changsha county used to grow only rice, sweet potatoes and hot peppers in the past while rich deposits of tin ore lay idle nearby.

The village and a geological institute in Changsha set up a factory last July. With techniques and equipment provided by the institute, the villages produced 250 tons of finished ore worth 400,000 yuan.

After recovery of investment, the village shared profits of 100,000 yuan. The 40 families in the village averaged an additional income of 1,300 yuan.

When the provincial embroidery factory lacked female labor last year, it signed contracts with a nearby town.

The 700 rural women, processing supplied materials in their homes, helped the factory complete export tasks in time while earning about 40 yuan per capita each month

Rural enterprises in Hunan have also set up ties with Beijing and Shanghai, and the Xinjiang Uygur autonomous region.

Yiyang prefecture in Hunan has developed 304 new products, increasing output value to 50 million yuan and profits to 13 million yuan thanks to cooperation with other provinces and regions.

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CSO: 4020/209

AGGREGATE ECONOMIC DATA

BRIEFS

JILIN TOWNSHIP ENTERPRISES--Township enterprises in Jilin Province developed continuously during the "Sixth 5-Year" Plan period. The ouput value of these township enterprises increased by 2.5 times in the 5 years, averaging a 28.9 percent increase annually. The output value in 1985 is expected to reach 3.58 billion yuan, a 31.1 percent increase over 1984. By 1985, the total number of the township enterprises of the province had reached 147,000, with a staff of 790,000 people, accounting for 22.1 percent of the total labor force in the rural areas. [Summary] [Changchun JILIN RIBAO in Chinese 7 Jan 86 p 1 SK] 12624

HEBEI TOWN ENTERPRISES--in 1985 a total of 4.65 million peasants in Hebei Province worked for town and township enterprises. The annual total income of the town and township enterprises amounted to 15 billion yuan, 4.26 billion yuan more than that of last year. [Summary] [Shijiazhuang Hebei Provincial Service in Mandarin 2300 GMT 4 Jan 86 SK] 12624

GANSU SUPPLY, MARKETING SYSTEM--The province's supply and marketing system did well in supporting peasants in developing production in 1985. According to statistics, in 1985, the province's supply and marketing system purchased goods worth a total of 1.6 billion yuan, sold goods worth a total of 1.7 billion yuan, and achieved a profit of 54 million yuan, hitting all-time highs in the three targets. /Summary/ /Lanzhou Gansu Provincial Service in Mandarin 1100 GMT 24 Jan 86 HK/ 12228

LIVING STANDARDS UP FOR TIANJIN--Tianjin, January 27 (XINHUA)--Living standards are improving for Tianjin urban families, according to a survey by the municipal statistical bureau. The survey of 1,000 families in urban Tianjin showed that the average annual income last year was 812 yuan per person--a 21 percent increase over 1984. With price increases deducted, the average income per person was 7 percent higher than 1984. The average living expenses per person was 771 yuan, a 29 percent increase over 1984, or a 13.6 percent increase in real terms. [Text] [Beijing XINHUA in English 1905 GMT 27 Jan 86 OW] 12624

CSO: 4020/209

ECONOMIC MANAGEMENT

HEBEI PROCURATORIAL ORGANS HANDLE ECONOMIC CASES

SK290836 Shijiashuang Hebei Provincial Service in Mandarin 2300 GMT 9 Jan 86

/Text/ Our province's procuratorial organs at all levels, in the course of dealing blows to criminal offenses, have also considered dealing blows to economic offenses as their important task. As of November 1985, the procuratorial organs at all levels throughout the province had accepted and heard 2,509 economic cases of various descriptions, of which 1,161 cases have been investigated and handled, thus recovering more than 1.19 million yuan in economic losses for the state and the collectives.

In the struggle against serious economic offenses, the procuratorial organs at all levels throughout the province have focused their work on dealing blows to economic offenses in the grain, banking and supply and marketing departments as well as in using false trademarks, and have placed their main direction of attack on major and appalling cases. They have concentrated their leader, strength, and time on solving each and every economic crime by applying systems engineering theory. They have also closely integrated the work of dealing blows to crimes with guarding against crimes, investigated and blocked all loopholes in the course of handling cases, analyzed the reasons for the crimes, and conducted activities on offering suggestions for investigations.

The procuratorial organs in Shijiazhuang Prefecture have closely coordinated with the relevant departments in the course of handling economic criminal activities in the grain departments. Through handling cases, they have summed up the four major links in the economic offenses of the grain departments, which have aroused the great attention of the relevant departments and stimulated progress in the work of comprehensively tackling economic criminal problems.

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HEBEI ACHIEVEMENTS, PROBLEMS IN GENERAL ECONOMIC CHECKUP

SK290833 Shijiazhuang HEBEI RIBAO in Chinese 16 Jan 86 p 1

/Excerpts/ With the help and guidance of the general checkup work group of the State Council, and the concerted efforts of the provincial, prefectural, city and county leaders at all levels and the relevant departments, our province has scored fairly good achievements in the tax, financial, and price general checkups. From July to 10 December 1985, the province as a whole discovered an illegal sum of 307.9 million yuan, of which 196.4 million yuan should be returned to the state treasury. Of this sum, 123 million yuan has been restored to the treasury. Of the illegal sum, 129.9 million yuan came from tax evasion and appropriation of funds for energy development, of which 85.8 million yuan has been returned to the treasury; and 178 million yuan came from violations of financial discipline, of which 69.7 million yuan should be returned to the treasury. So far, about 37.7 million yuan has been restored to the treasury. During this period the province discovered 7,912 cases concerning violations of price policies, and the total sum from economic sanctions reached 12.91 million yuan.

At present our province's tax, financial, and general price checkup has three problems. First, it has developed unevenly. Shijiazhuang, Xingtai, Cangzhou, and Baoding Prefectures and Shijiazhuang, Tangshan, and Handan cities started the work fairly quickly and grasped it firmly. They have achieved fairly great results, and the illegal funds discovered by each of them exceeded 20 million yuan. Handan and Shijiazhuang cities as well as Shijiazhuang and Cangzhou Prefectures each returned more than 10 million yuan to the treasury. Some localities started the work fairly late, and the progress of the work is slow and the results poor.

Second, the progress of restoring illegal funds to the treasury is slow. As of 10 December 1985, the province had restored to the treasury only 62.9 percent of the illegal funds which should be restored. The rate of restoring funds to the treasury in some localities and cities was even less than 50 percent.

Third, some localities have failed to strictly implement policies.

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ECONOMIC MANAGEMENT

COMMENTARY URGES IMPROVING ENTERPRISE MANAGEMENT

OW200032 Beijing XINHUA Domestic Service in Chinese 0747 GMT 18 Jan 86

[XINHUA commentator's article: "Make Great Efforts To Improve Enterprise Management"]

[Text] Beijing, 18 Jan (XINHUA)--A leading comrade of the State Council has pointed out that our technology and management are backward; that of the two, management is the more backward; and that we should make great efforts to improve enterprise management. His opinion conforms to the reality of China's economic work, and he has pointed out the way to further improve our economic work during the Seventh 5-Year Plan period.

After a comprehensive rectification and a preliminary reform since the 3d Plenary Session of the 11th CPC Central Committee, we have improved our enterprise management work. Generally speaking, however, the level of our enterprise management is still low. Backward enterprise management remains an important reason for poor product quality, high material consumption, and low economic efficiency in China today.

Some of our enterprises have equipment and technology as good as those of economically developed countries, but, due to backward management, our enterprises' economic efficiency is much lower than that of their foreign counterparts. Improving Enterprise management is our urgent task during the Seventh 5-Year Plan period.

Of course, our country lags behind economically developed countries in equipment and technology as a whole. Many of our comrades clearly know this fact and are striving to narrow the gap, but they do not fully know how backward our management is. A modern large-scale production needs comparably modern management. If our management is not improved, we will be unable to coordinate effectively the workers' work and bring into full play their initiative, wisdom, and creativity. Neither will be able to organize production rationally, enhance the overall effectiveness of enterprises, and produce maximum products of good quality with minimum labor and material consumption. To stress high productivity, good product quality, and high economic efficiency without emphasizing scientific management is only empty talk.

Generally speaking, there are three ways to increase production and improve efficiency. One is to rely on capital construction, the second is to undertake technological innovations and transformations and the third is to improve enterprise management. To meet our present situation, we should readjust our capital construction investment structure, strictly control the scale of capital construction, and undertake more technological innovation and transformation projects. However, we should put more emphasis on improving enterprise management. Improving management is less expensive and yields faster results than building capital construction projects and undertaking technological innovation and transformation. Therefore, we should mobilize the cadres and workers of the vast number of enterprises to work hard with one heart and one mind to raise China's enterprise management to a higher level.

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HUBEI GOVERNMENT HOLDS WORK CONFERENCE ON PRICE INSPECTION

HK310253 Wuhan Hubei Provincial Service in Mandarin 1100 GMT 20 Jan 86

/Text/ On 18 January, the province held a work conference on large-scale price inspection, at which it urged all localities to grasp and accomplish, in an indepth and down-to-earth manner, the task of price inspection.

(Wang Xinrang), leader of the State Council work group; and (Wang Jianfeng), deputy secretary general of the provincial government, attended and spoke at the conference.

The conference deemed that the inspection work the province did in the second stage was serious and solid. Through this inspection, the province has promoted work in the areas of controlling the growth rate of the retail price index; checking the situation of price hiking or doing so in a diguised way, checking the arbitrary levying of charges; stabilizing market prices; and protecting customer's interests.

The conference pointed out that a problem of recent price inspection work is that development is not even. Some people did not thoroughly understand the importance of price inspection. Some carried out the work superficially and did not really solve the problems, so that those units concerned re-engage in malpractices once the inspection is over. Some still face knotty problems, white others treated cases concerning violations of discipline lightly.

The conference urged that all localities must further heighten their understanding, and strengthen their leadership over inspection work. In connection with the centralized planning of the State Council office for large-scale taxation, financial and price inspection, as well as the requirements of the provincial office for large-scale price inspection, they should grasp firmly and well, price inspection at the third stage. They must do well in supervising and inspecting prices during the spring festival, and adopt measures for strengthening price supervision both over markets and individual peddlars. The commercial departments should maintain an abundant supply of goods, so as to meet public demand during the season.

The conference also urged all locaiities to strengthen propaganda work and prepare public opinion. They should organize the forces of society to do well in this large-scale inspection with high quality.

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ECONOMIC MANAGEMENT

YUAN BAOHUA ON EXAMINATION OF FACTORY DIRECTORS

OW020031 Beijing XINHUA Domestic Service in Chinese 1454 GMT 31 Jan 86

[Text] Beijing, 31 Jan (XINHUA)--Yuan Baohua, vice minister of the State Economic Commission, said that persistent efforts should be made to introduce a system of unified examination for the training, selection, and appointment of managers and directors of factories (mines) so as to raise the quality of our enterprise leading cadres and the level of management and operation.

Yuan Baohua pointed out today at the fourth National Work Conference on Unified Examination for Managers and Factory Directors: At present, factory directors are tested for the purpose of "making up missed lessons." Thanks to the readjustment in recent years, members of the readjustment in recent years, members of the leading bodies of many enterprises have become younger and more knowledgeable. However, there are relatively more technological cadres in the new leading bodies and management expertise is wanting. Some enterprise leaders still do not know how to operate our enterprises in accordance with socialist management principles, styles, and methods in the new period. Some enterprise responsible persons are not qualified to lead the enterprises in concentrating on transforming backward technology and management and in promoting the two civilizations. Therefore, we should help enterprise leading cadres "make up missed lessons" by subjecting them to training and unified examination.

Yuan Baohua said: From a long-term, perspective, the organizational structure and cadre system of our enterprises must be reformed, as must the cadre evaluation system. Unified examination should become one of the important means for the state to check on enterprise leading cadres. During the Seventh 5-Year Plan period, enterprises should vigilantly attend to the training and examination on four levels, that is, aside from the level of enterprise responsible persons, they should pay close attention to the training and examination of middle-level cadres, specialized personnel of all types, and team or group leaders as well as backbone production personnel. In training and examining cadres, we should give priority to quality and pay attention to correcting the tendency of stressing technology and slighting management, stressing economic management and slighting administrative management so that all members of enterprises are aware of not only economic results but also work efficiency.

Yuan Baohua urged all localities, departments, and enterprises to devote more time and energy in this regard and explore means for establishing a scientific cadre management system and raising the quality of enterprises in an all-round way.

It is learned that the conference summed up the experience of administering unified examinations over the past 2 years, made arrangements for this year's unified examinations, and particularly studied and arranged unified examinations for leading cadres of large and medium-sized enterprises. The conference urged all localities and departments to strengthen leadership over unified examination work, support the work of their local unified examination leading groups, and pay special attention to improving the quality of pre-examination training. At the same time, they should conduct investigation and study in connection with unified examinations and earnestly study a way to persistently administer the unified examinations under a state examination system.

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CSO: 4006/678

FACTORY LEADERS URGED TO TAKE STATE EXAMINATIONS

OW021413 Beijing XINHUA Domestic Service in Chinese 0829 GMT 1 Feb 86

[By reporter Ge Daxing]

[Excerpts] Beijing, 1 Feb (XINHUA)--Since the institution of state examinations for enterprise managers and factory and mine directors two years ago, 237 large and medium-sized enterprises throughout the country have failed to send anyone to take the examinations. The Guidance Committee for the State Exams for Economic Managerial Cadres recently issued a circular to criticize these enterprises, urging leading cadres of large and medium-sized enterprises who have failed to take the exams to actively participate in this year's state exams.

Geographically speaking, provinces, autonomous regions, and municipalities directly under the central government with more than 10 such enterprises each under criticism included Guangxi, Shanghai, Jiangsu, Heilongjiang, Guangdong, and Yunnan. A number of enterprises under the direct administration of the Ministry of Water Resources and Electric Power, the Ministry of Light Industry, the Ministry of Ordnance Industry, the Ministry of Electronics Industry, the Ministry of Nuclear Industry, and the Ministry of Communications were also criticized by the circular.

The Guidance Committee for the State Exams for Economic Managerial Cadres pointed out: The State exams for enterprise managers and mine and factory directors were decided upon by the State Council. It is a mandatory task. The state exams are designed to encourage leaders of large and medium-sized enterprises to acquire expertise in exercising leadership and raise their managerial standards. In the past two years, more than 15,000 leading cadres from various large and medium-sized enterprises throughout the country have passed the state exams. However, many leading cadres have not taken the exams

The Guidance Committee for the State Exams for Economic Managerial Cadres pointed out: Leading Cadres of various large and medium-sized enterprises should take the lead in taking the state exams. Those who fail to take the exams without sufficient reason must be educated and criticized, and those who refuse to take the exams will face dismissal from their posts. Various departments concerned must ensure that managers and factory and mine directors of large and medium-sized enterprises take the state exams in the same way that they ensure the enterprises pass the acceptance tests after being consolidated.

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CSO: 4006/678

ECONOMIC MANAGEMENT

MEETING STRESSES IMPORTANCE OF ECONOMIC LEVERS

OW041405 Beijing XINHUA Domestic Service in Chinese 0912 GMT 4 Feb 86

[By reporter Yu Youhai]

[Excerpts] Beijing, 4 Feb (XINHUA)--Everyone talks about economic levers. The interest in economic levers has never been so intense. This was the impression I got after attending the closing meeting on national planning today. Leading comrades referred to economic levers in their reports. Delegates discussed economic levers.

The leading comrades of Chongqing City used tax collection as an economic lever last year, stipulating that all units and individual businesses should pay business taxes. Taxes on business income would double if the units or businesses did not run their operations in line with the state's regulations on commodities and prices. The "Economic lever" showed immediate results. The city's tax revenue increased some 10 million yuan in 1 year.

In Shanghai Municipality, bank credits and loans have begun to play an important role as economic levers in drawing enterprises' attention to investment returns.

A period of exploration has convinced comrades in Guangdong, Chongqing, and Shanghai That, in bringing the role of economic levers into play, macro economic management could be improved and strengthened. Beijing, Tianjin, Liaoning, Zhejiang, Hubei, Shaanxi, Nei Monggol, and other provinces and autonomous regions have also come to realize that this is the right course to take.

Comrades of the State Planning Commission said: We are now building a socialist economic system with Chinese characteristics and an economic system that is full of vitality. For macroeconomic management, we chiefly rely on using administrative means to exercise direct control; we then shift step by step to using mainly economic means to exercise indirect control and guidance. Bringing the role of economic levers into play is an imperative task. It can be said that presently our work in this respect has only just begun; many practical programs remain to be solved. Anyway, it is a big advance if we compare the new method with the old. Having made the first step, we will surely advance step by step along the new road of macroeconomic reform, and make economic levers better served and guide China's economic construction.

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CSO: 4006/678

PRC JOURNAL ON BONUS DISTRIBUTION IN ENTERPRISES

HK030657 Beijing JINGJI GUANLI in Chinese No 11, 5 Nov 85 pp 46-49

/Article by Zhong Fengzhi /6988 6646 3112/: "On the Question of Bonus Distribution in Enterprises"--Edited by Shen Hongsheng /3088 7703 3932/ /

/Text/ An enterprise's internal method of bonus distribution directly affects the production and work enthusiasm of the staff and workers of the enterprise. If the distribution of bonuses is rational, it will be possible to manifest quite well the principle of distribution according to work. Thus the workers' enthusiasm will be fully brought into play, labor productivity will clearly improve, and enterprises will therefore obtain better economic results. If the distribution of bonuses is irrational, the opposite results will be achieved. Thus, paying attention to summing up the experiences of practice and continually exploring and perfecting methods for bonus distribution has great significance in further doing well in enterprise management and improving economic results.

I. Several Commonly Used Methods of Bonus Distribution in Enterprises

1. Deciding on bonuses according to levels. This is where there are various levels of bonus. The bonus a person receives is based on their comparative individual performance, and is democratically fixed. Of course, in using this method to distribute bonuses, it is impossible to avoid the influence of impressions, relationships, and other such subjective factors. Thus, it is very easy for contradictions and disputes to arise among staff and workers. In fact, in many small production groups, every time bonuses are given out, wrangling occurs. And before the old resentment is settled, new resentment is created, and through this vicious cycle things get worse and worse. In the end, the masses are upset and resentful, the leaders have headaches, and no one wants to assess bonuses any more. Thus, today this system is rarely used. However, the bonus distribution system whereby people "take turns being dealer" (that is, they take turns in accepting first, second, and third level bonuses) can be seen as just a "mutation" of "eating from the same big pot."

2. Calculating bonuses based on working hours. This method is simple and cannot give rise to contradictions and disputes. This method gets rid of the strange phenomena of fake medical certificates, lingering on the sick roll, and trying to get injured at work. However, the long lines of people outside

the clinic going to see the doctor get longer rather than shorter (as time spent seeing the doctor is considered worktime). Thus, the phenomenon of people putting in time, but not putting in any work, becomes very serious. Seen from the statistics, the amount of time put in by workers increases, but labor productivity does not increase accordingly.

3. Calculating bonuses in accordance with the completion of a fixed number of workhours. The formula for calculating this is:

b equals $h \times C - b'$ (1)

where:
b is the bonus each person should obtain (calculated on a monthly basis. (Same below.)
h is the number of quota workhours a person completes.
b' is the amount of bonus deducted due to excessive consumption or production of rejects. And
C is the amount of bonus for each quota workhour.

C equals $(B$ plus $B' - B'')$ divided by H (2)

where:
B is the amount of bonus the unit obtains on the basis of its contract.
B' is the amount of bonus retained by the unit the previous month.
B'' is the amount of reserve bonus retained by the unit.
H is the number of quota workhours completed by the unit.

The advantages of using this method to calculate bonuses are:

1. In the calculation of bonuses, it completely does away with factors unconnected with the amount of labor. This has advantages in motivating the enthusiasm of all types of staff and workers.

2. Deciding bonuses is changed into calculating bonuses. The basis of calculation is the number of quota workhours completed by each individual. If they work more, they get more, and if they work less, they get less. It is simple and clear and there is nothing which can give rise to disputes. Thus, on the one hand it can manifest differentials, and on the other hand it will not give rise to contradictions and disputes.

3. Those people who put in time, but do not put in any work, will not fulfill the quota workhours and will not receive bonuses. Thus the phenomena of loafing on the job, trying to appear busy but doing nothing, and queuing outside the clinic to have an "illness" treated will all be eliminated.

4. It promotes quota management. In the past, because everyone was treated the same, there was no encouragement, even if a quota was completed. Likewise, if a quota was not completed, there was no penalty. Quotas were in fact optional. No one paid any attention to whether what had been agreed upon was rational or not. Thus, from the top to the bottom, no one took quotas seriously.

The work of formulating quotas was often treated as a trifling matter. In many units, the quotas were fixed by the head of the workshop, or even by workers who arbitrarily put forward figures, and remained unchanged for a long period. Using quotas of this type, the calculation of labor productivity was of course muddled, and did not provide answers to any questions. Now, quota workhours are used as a basis for calculating bonuses, and excessive consumption results in reduced bonuses. Whether the formulation of the quotas is rational or not has a direct effect on the personal interests of the workers. This thus forces management cadres to readjust quotas seriously and manage them well.

After implementing this type of distribution method, the phenomenon of putting in time but not putting in any work will be eliminated. However, like in the past, no one will be willing to do the work which is hot, dirty, or tiring, highly technical, or which requires a high degree of skill. This results in the people whom the leader sends to do such work refusing to do it and thus there is no option but for the leading person to do it himself. As such work piles up day after day, month after month, his health will fail and his spirit will collapse. Thus, everyone considers being group leader to be a dangerous undertaking. There is another situation where new workers or temporarily mobilized office staff are sent to work. These new workers and temporary "randomly grabbed bridegroom" cadres are not very familiar with technology and their technical skills are not polished. One can guess at the quality of products which they process. For example, in a unit in which the writer worked, there was a multispindle combination boring lathe. The original plans called for the provision of a level-six boring lathe operator. However, for a long period, the machine was mostly operated by a new worker. The reason for this was that the intensity of labor on this machine was great, and the technical requirements high. Doing this work not only gave rise to great weariness, but if it was not well-mastered and many rejects were produced, the operator would be subject to punishment. When compared with other, lighter and simpler work, the completion of a similar number of quota work would not bring any more benefits. Thus, for 10-plus years, there were continual machinery and quality mishaps and, although everyone knew the reason, no one took any action to resolve the problem.

Some people may say that this was due to the fact that ideological and political work has not done well, and that was not a management problem. Actually, this is incorrect. We can say that in our socialist enterprises, all the universal negative phenomena have their origins in violation of the principle of distribution according to labor.

We all know that in the specific acts of labor in which individuals engage, the level of technology, the amount of labor consumed, and the labor conditions are all different. However, what a work quota represents is the necessary labor time required of an ordinary laborer to complete a certain work procedure (or task) with a certain tool and a certain degree of proficiency. It does not (and should not) include such things as the degree of difficulty of the work, the intensity of labor, the labor conditions, and other such important factors which constitute the quantity of labor. Thus, in respect of heavy work and light work, working at the top of a pit and working at the bottom of a pit, working outside and working inside, and other differences in the type of labor, when we speak of the same amount of workhours for each, we cannot regard such work as equal. In general, the content of each quota workhour is different and the amount of labor which it entails is also different. Thus, if we calculate bonuses purely on the basis of quota workhours, those people who engage in work which is difficult, has poor conditions, and is technically complex will be putting in a lot of labor, but not obtaining appropriate rewards. Very few people will be willing to do such work. In order to resolve this problem, some units are using labor coefficients in the distribution of bonuses.

4. The calculation of bonuses on the basis of the amount of labor. We know that distribution according to labor means that the amount of what is distributed is based on the amount of labor contributed. However, as described above, if we simply rely on the number of quota workhours completed by a laborer, we cannot correctly measure the amount of labor contributed. If we are to really calculate bonuses on the amount of labor provided, apart from quota workhours, we must take labor coefficients into consideration.

What are referred to as labor coefficients are the important factors related to measuring the amount of labor contributed, such as the degree of complexity of the labor, the labor intensity, and labor conditions. If we use K to represent the labor coefficient, and use k(1), k(2), and k(3) respectively to represent the degree of complexity of the labor, the labor intensity, and the labor conditions, then:

K equals k(1) multiplied by k(2) multiplied by k(3) (3)

After the labor coefficient is introduced, the basic formula for bonus distribution is:

b equals h(1) by k(1) plus h(2) by k(2) plus h(3) by k(3) plus h(n) by k(n) by c minus b' equals (sigma h(n) by k(n)) by c minus b' (4)

In the formula:

b is the amount of bonus which each person will receive (calculated on a monthly basis. Same below.)

h(1), h(2), h(3),...h(n) are the quota workhours completed by that person in different work procedures (or tasks).

k(1), k(2), k(3),...k(n) are the corresponding labor coefficients.

Sigma h(n) multiplied by k(n) is the number of labor units (number of shares).

b' is the amount of bonus retained by the unit due to excessive consumption or production of rejects by the worker.

c is the amount of bonus per labor unit (value of share).

c equals (B plus B' minus B") divided by (H(1) multiplied by k(1) plus h(2) multiplied by k(2) plus H(3) by h(3)...h(n) by k(n))

Equals (B plus B' minus B") divided by (Sigma H(n) multiplied by k(n)) (5)
where:

B is the amount of bonus the unit obtains on the basis of its contracts.

B' is the amount of bonus retained by the unit the previous month.

B" is the amount of reserve bonus retained by the unit.

H(1), H(2), H(3),...H(n) are the number of quota workhours used by the unit in completing different work procedures.

k(1), k(2), k(3),...k(n) are the equivalent labor coefficients.

Sigma H(n) multiplied by k(n) is the total number of the unit's labor units (total number of shares).

In the calculation of the bonus distribution, the concept of including labor coefficients so as to generally achieve bonuses calculated on the basis of the amount of labor is undoubtedly a clear advance in distribution methods. When compared to other distribution methods, it is more scientific, more rational, and more in accord with the principle of distribution according to work. As far as the writer is aware, in those places where this method of calculating bonuses has been used, the phenomenon of putting in time but not putting in any work is not found. Also, there are no worries about not having people to do the various types of difficult, heavy, arduous, dirty, and painful work. In addition, the enterprises' labor productivity and economic results both clearly improve.

2. The problems existing in Bonus Distribution and Ways to Resolve Them

At present, the most common form of internal distribution of bonuses between units in many large and medium-sized enterprises is as follows: The amount of profits retained by each unit in the previous year is taken as its fixed contract amount. The bonuses are then taken from the excess amount after completing the profit contract. Since this system was introduced, in units with good economic results, the average per-capita contract amount is great, whereas in units where the economic results are not good, the contract amount is small. In units where the economic results are poor, there is often much latent potential and, by making small changes, it is possible to greatly exceed the amounts contracted for. Thus, although, after making the changes, the per-capita profit (in normal situations, equivalent to per-capita contribution of labor) is still very low, the per-capita bonuses received by the staff and workers can still be high. As for the units with good economic results, because their starting point is high, the difficulties of making further progress are, of course, greater, and it is not possible to greatly exceed the amounts contracted for. Thus, although the workers' per-capita contribution is far greater than that of the workers in the first-mentioned case, the bonuses they receive will probably be less. The masses refer to this as "whipping the fast ox." The phenomena of the making of offers and counter-offers in decided on a contracted profit amount and the ideology of fearing being conspicuous, which exist widely in units at present, have their origins in this situation.

Of course, enterprises with good economic results should continue to make great contributions and contract for large amounts of profits. Thus, for these enterprises, the problem does not lie in contract targets being too high, but in the situation where workers work harder but do not get any more, or even work harder and get less. Thus, it is proposed that, after adjusting prices in factories so as to achieve a basic rationality, and with the prerequisite of completing contracted tasks, each unit should implement the system where the bonuses given out are based on the level of per-capita profits. In this way, it will be possible to avoid the phenomenon of "whipping the fast ox," and the various units will dare to go all out in tapping latent potential and will be at ease about improving results. As to those units which were generally backward, but which have made great progress through reorganization, it is possible to increase the bonuses of those staff members and workers (including leaders) who have made outstanding contributions. As to the other staff and workers, I feel it is still appropriate to ensure that their remuneration (including wages and bonuses) is generally equivalent to the amount of labor they have supplied to society (after the various deductions have been made).

2. As to functional administrative offices and auxiliary departments within enterprises, a large proportion of their staff and workers are still "eating from the same big pot." The major reason for this is that there are no time quotas or quality stnadards for work in these departments. Thus, there is no objective basis for an uncontestable decision as to who worked more and who worked less. In order to avoid contradictions occurring in the assessment of bonuses, which would affect unity, there is no way but to "let everyone eat the rice." Thus, if we are to change the situation where these departments are "eating from the same big pot," then we must first formulate time quotas and quality standards, and determine labor coefficients for every work procedure. In this way, we can, in accordance with the formulas (3), (4), and (5), and on the basis of the amount of labor each person actually completes, calculate the bonus they should receive. Of course, the situation in these departments is much more complicated than that in the production units, and it will certainly not be easy setting down time quotas, quality standards, and labor coefficients for the many types of different work. However, I believe that this is the basic work of enterprise management. We have to have people do this sooner or later, but the sooner the better.

3. Some units take the degree of importance and the amount of responsibility as the basis for determining bonuses. This is wrong. Because bonuses are a form of distribution according to work, the only basis for their distribution should be the amount of work. The importance of the work which somebody does or the amount of responsibility taken on does not mean that their labor contribution is the greatest. In fact, this method can only lead to unhelpful disputes as to whether political and ideological work or economic work is most important, whether the party committee department's responsibility is the greatest or the executive department's responsibility is the greatest. This can have no benefit for production or work. Thus, in the distribution of bonuses, we should reject those factors which are unconnected with the amount of labor.

4. Some units have improperly used the cancelling of bonus entitlement as a punishment measure. When staff or workers make mistakes, it frequently occurs that their bonus entitlement is cancelled for several months or even for up to a year. This is actually cancelling an effective measure for promoting their enthusiasm. The result is that the work enthusiasm of the staff and workers who have been penalized declines, resulting in losses which should not have occurred. Take, for example, a worker who had been allowed to remain at his factory but who was placed under observation for 2 years. His wages were cancelled and he was only left with enough for individual living costs. In his family, there were great difficulties. Whereas originally he wanted to work harder to earn bonuses to support his family, once he heard that he had been placed under observation and his bonus qualifications had been cancelled, his attitude immediately changed and he did not work well. And, because excuses are not difficult to find, the six-spindle semiautomatic standing lathe which he operated became the bottleneck in the factory. His production was extremely passive. Later, when the stipulation cancelling his bonus qualification was withdrawn, he went all out and worked very hard, regularly surpassing his quota by 20-30 percent. A shortcoming quickly became an advantage and passivity changed into activity. From this, we can see that using the method of cancelling bonus qualifications for a long period as a punishment for staff and workers brings great disadvantages and few benefits. If staff members or workers violate discipline and must be subject to eocnomic sanctions, it would be better to impose a fixed fine, while still handing over to the person penalized the bonus he should receive for his labor.

5. When formulating labor coefficients, some units pay much attention to the intensity of labor and the conditions of labor. However, they do not pay sufficient, or any attention to the degree of complexity of the labor. This dampens the enthusiasm of the workers for studying and mastering technology and is not of advantage to raising product quality or improving technology. There is an urgent need to overcome this shortcoming.

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ECONOMIC MANAGEMENT

PRC JOURNAL ON ABSOLUTE, RELATIVE BONUS AMOUNTS

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/Article by Dang Ziang /8093 1730/ and Kang Zhixiang /1660 1807 4382/: "On the Absolute Amount and Relative Amount of Bonuses"--Edited by Pan Shucheng /3382 6615 3397/ /

/Text/ Since the restoration of the bonus system, on the basis of an initial qualitatie analysis of bonuses, the question of bonus amounts and their roles has received daily-increasing attention. It is hoped in this article to make a simple analysis of the question of bonus amounts from the angle of enterprise management.

1. On the Absolute Amount of Bonuses

Bonuses are enterprises' most important material incentive measures. But it is not under all conditions that bonuses can stimulate the production enthusiasm of staff and workers. When we look at the quantities, those people being encouraged have requirements in terms of the lowest level of their bonus. We did an investigation of over 100 staff members and workers from different enterprises and of different occupations, ages, and occupational levels. Nearly without exception, they held: When the bonus is lower than a certain level, it is not worth striving for. Only when the bonus is above a certain value does it play a stimulatory role. We refer to that bonus value which is the lowest value able to bring about a reaction in those being stimulated as the absolute threshold value of bonuses (threshold generally refers to a dividing line or a limit). In enterprise management, if bonuses are to be used as a stimulatory measure, then the lowest amount of bonus by which their role can be brought into play is determined by the threshold value.

The absolute threshold value of bonuses is a variable and is conditioned by many different factors. Some of the more important factors include: 1) The wage level of the staff and workers and the standard of living related to this. When the wages and standard of living are fairly low, a small bonus is able to play a quite great stimulatory effect. At such times, the bonus threshold value is low. In the opposite situation, the threshold value is high. 2) The level of prices, especially of consumer goods prices. When prices rise, people hope to receive large bonuses as supplements. Thus, in general, changes in bonus threshold value have a direct relationship with changes in prices.

3) The size of bonuses allocated in the previous period. If the level of bonuses given in previous periods has always been quite high, the bonus threshold value will be raised. 4) People's work motivation. When a person's work motivation is solely to earn money to satisfy his livelihood needs, the threshold value is a bit higher. When a person is strongly motivated to realize achievements in his work and he looks on money as of secondary importance, then the threshold value will be a little lower.

Because people's demands in life, family environment, work motivation, and value concepts are different, bonus threshold values differ with individuals. The same amount of bonus can have a different stimulatory role on different people. However, individuals live within a group and are affected by many common conditions such as price and wage systems, work environment, and so on. On this basis, there is formed a certain group consciousness. Thus, in regard to an enterprise or a group, the bonus threshold limit has a collective tendency.

Following the continual raising of the wage levels and standard of living of our nation's staff and workers, and in the wake of the increased prices of consumer products and the tendency of change in bonus threshold values to be gradually upwards, the trend suggests that if the absolute value of bonuses does not change, their stimulatory role will become gradually weaker. In such a situation, if enterprises want to maintain or improve the stimulatory role of bonuses on staff and workers, then they will have to raise the absolute amount of bonuses.

The bonus amount has also an upper limit which is determined by a series of objective economic factors. As far as the enterprise is concerned, the upper limit is determined by the degree of increase in labor productivity and the amount of funds, from aftertax profits, to be used for encouragement. As far as a staff member or worker is concerned, the upper limit of his bonus is determined by the maximum amount of extra labor he is able to supply.

Clearly, the amount of bonus provided by the enterprise should be above the bonus threshold value and below the limits allowed by the enterprises' funds for encouragement, and should be fixed by comprehensively considering the income and living standards of the staff and workers, the level of prices, the amounts of previous bonuses given, the work motivation of staff members and workers and other factors. When the bonus threshold value rises, we should ensure that bonus amounts rise in a way which accords with the growth of labor productivity and of taxed profits. This will assist in continually motivating the production enthusiasm of staff and workers. However, in actual management, there are some management cadres who do not do this. Some, on the basis of a particular thought, greatly increase the bonus amounts without considering whether objective conditions will allow it. Others, in order to complete some task, inappropriately increase bonuses to encourage the staff and workers. This sort of encouragement may be effective in the short-term, but because the then current bonus will be very high, as the bonus threshold value has been artifically raised, when objective conditions force the high bonuses to decline or after a task is completed and bonuses return to their original level, the stimulatory role of bonuses will decline. This type of great rises and falls in bonus amounts places mental obstacles in the way of future work. This method, in which one gets enmeshed in one's own web, is inadequate.

In the use of bonuses as stimulatory measures, the lower limit of the bonus amount and the upper limit are determined by different factors. This may result in the situation where some enterprises' upper limit is equal to or even less than the minimum limit in other enterprises. In such cases, the stimulatory role of the bonuses will be next to nothing. In accordance with the actual situation, the enterprises will only be able to make much of the timing, the situation, and the method of bonus distribution to make good the deficiency in the amount of the bonus.

2. On the Relative Comparative Amounts of Bonuses

When the amounts of bonuses are above the lower limit, people will be more inclined to make all sorts of qualitative comparisons and will pay more attention to comparative amounts of bonuses. In any situation, and especially in collective operation situations, solely using the amount of bonus to determine whether the bonus corresponds with the above-quota labor supplied brings great difficulties to both the workers and the specialists. Conversely, if various vertical and horizontal comparisons of the bonuses received are made, people can then determine whether the bonuses they received correspond with the above-quota labor supplied, can decide whether what they received as compared with what others received was fair, and so on. We can see that to a certain degree, the relative amounts of bonuses manifest the distribution relationships among people.

The obtaining of bonuses is a requirement for satisfying people's sense of honor and sense of achievement. In this sense, the amount of the bonus is seen even more as a symbol of achievement or honor. Thus, staff members and workers pay much attention to the comparative amounts of bonuses in determining the degree to which efforts at work have been noticed and recognized by the leaders. When staff members and workers work hard and thereby obtain quite high bonuses, their sense of accomplishment and sense of honor is satisfied. This thereby stimulates their enthusiasm for work. In enterprise management work, we must exert much effort in arranging well the relative comparative amounts of bonuses. This is the key to ensuring that the stimulatory role of bonuses are really brought into play.

The relative amounts of bonuses can be of the following major types:

1. Vertical comparative amounts. This is the amount of bonuses as compared to that unit or that person's previous bonuses. According to our investigation in two factories, over 57 percent of the staff members and workers advised that they would be satisfied if "this year's bonus was a little higher than that for the same period last year." However, 75 percent advised that they would be dissatisfied if "this year's bonus was lower than that for the same period last year." This shows that most staff members and workers look forward to a gradual increase in bonus. This is because, in general, if the labor productivity of an enterprise is to rise, the amount of above-quota labor to be supplied by people will also rise. At the same time, in a normal situation, personal income has an irreversible nature. The level of consumption and the consumption habits formed on a certain level of income ensure that people not only do not want their income to decrease, but rather require that it gradually

increases. Thinking about the effects of the above-mentioned comparative amounts on staff and workers, in enterprise management work, we should consciously avoid great rises and falls. Some enterprises, when their operations are proceeding smoothly and there are plenty of encouragement funds, consciously control the amount of bonus distributed. In this way, when operations experience difficulties and the encouragement funds are scarce, it will be possible to avoid a great decline in bonus amounts. Thus it will be possible for bonuses to achieve stable, linear growth. This is a quite good way of handling things.

2. Horizontal comparative amounts I. This is the amount of bonuses as compared to those in other enterprises. The reason bonuses in different enterprises are at different levels is that the labor productivity in the various enterprises is different and the encouragement funds left from after-tax profits differ. However, in present conditions, because of the existence of a large number of external economic factors which enterprises are unable to control and which affect operations, the enterprises all have different starting points. This results in the comparison of enterprises' bonuses often not precisely reflecting the operational situation of these enterprises.

However, this type of comparative amounts has a very great effect on staff and workers. According to our investigation, about 65 percent of staff and workers should be satisfied if "the factory's bonuses are higher than those in surrounding factories." In such a situation, the staff and workers often have a spontaneous sense of pride and honor which is of benefit in stimulating their enthusiasm for work. However, 63 percent of the workers advised they would be dissatisfied if "the factory's bonuses were lower than those in surrounding factories." In such a situation, a fair portion of the staff and workers have an imitative mentality and hope that the unit will raise its bonuses. Some of the leaders also incline towards initiating other units, with the hope that this will stimulate the production enthusaism of staff and workers.

Under the influence of this imitative mentality, two types of imitative actions may occur. First, there might be imitation of other enterprises by working hard to develop production, opening up production avenues, strengthening enterprise management, and improving economic results, and, on this basis, increasing the staff and workers' bonuses. This sort of limitation on the one hand provides social competition and production development and, on the other hand, satisfies staff and workers' demands for higher bonuses while stimulating their enthusiasm for production. Thus, such imitation deserves to be encouraged. The second type of imitation is where there are inappropriate increases in bonuses. This type of imitative actions will have bad effects on both the enterprise and on the society. As far as the enterprise is concerned, once the wish to emulate the higher bonuses of other enterprises is realized, the stimulatory role of the high bonus on the staff and workers in the imitating unit will be much smaller. This is because the high bonuses obtained in this way are introduced from the external environment. They are not naturally linked with whether the enterprise's operations are good or bad or whether the amount of above-quota labor supplied by the staff and workers is great or small. People thus naturally come to believe that the obtaining of greater bonuses depends not on supplying a greater amount of above-quota labor to the society, but on the leaders daring to speak out and to nod in agreement, and even to avail themselves of loopholes in state policies. In such a situation, it is difficult for staff and workers to see high bonuses as a symbol of honor and achievement. All of these factors cause a reduction in the stimulatory role of bonuses. As far as the society is concerned, enterprises wanting to imitate those enterprises which have higher bonuses than themselves may result in the speed of consumption funds growth exceeding the speed at which labor productivity grows. This would thereby give rise to excessive inflation of consumption funds which would lead to an imbalance in macroeconomic ratios. This shows that bonus distribution has a great influence on the macroeconomy. Thus enterprises should fully consider their own social responsibilities so as to avoid the second type of imitative actions.

3. Horizontal comparative amounts II. This is the amount of bonuses as compared within an enterprise. The staff members and workers of a single enterprise labor in an environment in which many of the external and internal factors are the same. The staff members and workers know each other and thus their labor is highly comparable. Through such comparison, the staff members and workers can get a direct feeling as to whether the bonus they have obtained is fair or not, what their position in the organization is, whether their achievement motivation and motivation to achieve honor have been realized, and so on. Thus, this sort of comparative amount is paid much attention by staff and workers, and either stimulates or restricts their work enthusiasm.

The quantitative differences in the above-quota labor supplied by staff and workers is the basis for quantitative differences in their bonuses. When the comparative amounts of bonuses can correctly reflect differences in above-quota labor, it can stimulate the work enthusiasm of staff and workers. Thus, in management, on the one hand it is necessary to formulate rational, quite advanced labor quotas and to perfect scientific assessment methods, so as to make detailed records and carry out precise calculations of the various types of economic activities, and so that there is a basis on which to calculate labor differentials, which will in turn provide a basis for bonus differentials. On the other hand, managers must look on all the staff and workers equally and must strive to assess each worker's work attitude and work achievements in an objective way. This appraisal should be linked with bonuses, penalties, and rewards. Also the manager must strictly avoid proceeding from personal likes and dislikes in assessing the labor of staff members and workers.

Scientifically setting down bonus grades and the quantitative differences between grades is of great importance. If the quantitative differences between bonus grades are too small, then people will not pay them much attention. If the staff and workers' attention is to be gained, the quantitative differences between grades must be quite large. We refer to the smallest bonus differential which can stimulate reaction in people as the bonus differential threshold value. The differential threshold value is the lower limit of quantitative differentials between bonus grades. If there are only small differentials to which people pay no attention, it is in fact just a form of egalitarianism. Such a method cannot stimulate the staff and workers to struggle for a higher goal. Of course, the differences between bonus grades cannot be too great, because these would exceed the differences in above-quota labor and would produce a feeling of unfairness among staff and workers.

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PRC JOURNAL ON HOW TO VIEW WORKERS' SIDE JOBS

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/Article by Liu Bin /0491 1755/: "How Should We Look at Workers' Side Jobs?"--Edited by Pan Shucheng /3382 6615 3397/ /

/Text/ Editor's Note: How should a permanent staff member or worker employed in a unit owned by the whole people appropriately spend his spare time in taking up some job other than the permanent one and thus earning a reasonable income under the precondition of fulfilling the tasks of his permanent job? This is a new problem that has cropped up in the process of carrying out the urban economic reform and enlivening our economy. Judging by the actual state of affairs in some units at present, comparatively many contradictions have emerged in this sphere and people disagree in their understanding. How we are to adroitly guide action according to circumstances, strengthen our administration over it, and thus facilitate the construction of the two civilizations is question worthy of attention. We hope that the vast numbers of readers and writers air their views on this question. /end Editor's note/

Over the past few years, some staff and workers in enterprises owned by the whole people or in collective enterprises have used their spare time to do side jobs and earn a reasonable income after fulfilling the work tasks in the 8 hours that they are employed in their enterprises. This practice has attracted attention and caused debate in our theoretical circles and in public opinion. I think that solving this problem is of great significance in carrying out our country's current reform, giving full play to laborers' initiative, improving our economic results, and promoting the development of the socialist commodity economy.

I.

We have focused on carrying out investigations in the leather, furniture, and clothing companies in the second light industry bureau, Chongqing City, companies where a relatively large proportion of staff members and workers have undertaken side jobs. There are 7,800 staff and workers in the leather company, of whom 5,358 are permanent staff and workers in enterprises owned by the whole people. About 20 percent of these permanent staff and workers have undertaken side jobs. Among the 7,800 staff and workers, 1,442 are employed by collective enterprises and 35-40 percent of those 1,442 people have undertaken side jobs. There are 5,780 staff and workers in the furniture company, of whom 5 percent are engaged in side jobs. There are 8,000 staff and workers in the clothing company, among whom 20-30 percent have undertaken side jobs. Most of the staff and workers in these companies are skilled workers with handicraft skills and their production is all characterized by simple technology, easy operation, and plentiful sources of raw materials, needing no complicated tools or relatively large work sites, and mainly depending on personal manual labor and skill.

The forms of side jobs undertaken by the staff and workers in these units are diverse. As well as home production and producers selling goods on their own, they take the following forms:

First, they help process certain products for township, town, and neighborhood enterprises and for individual households.

Second, they sign all-round responsibility contracts to spend their spare time helping township and town enterprises carry out technological renovation.

Third, they spend their spare time training technological workers or teaching apprentices. On the one hand, they charge tuition fees, and on the other, when they and their apprentices do work outside, they receive payment for their own and their apprentices' work.

Fourth, they spend their spare time in conducting commercial activities, such as helping township and town enterprises to purchase raw materials, setting up joint ventures with other people to deal in small articles of daily use, or doing business as food hawkers in the evening.

Fifth, they undertake all-round responsibility, by contract, to maintain or repair machinery.

Among the above-mentioned people who have undertaken side jobs, about 60 percent are workers and 40 percent are enterprise management engineering and technical workers.

Why have so many staff and workers undertaken side jobs? Through the investigation, I think there are both subjective and objective reasons.

The objective reason is that in order to improve their economic results and win in competition, the newly established township, town, and neighborhood enterprises need a large number of technical personnel. They have not only employed large numbers of retired scientific and technological workers and skilled workers, but have also been willing to provide high remuneration to recruit skilled workers and management workers, who are already employed in permanent posts, to work for them in their spare time. At present, the labor quotas in our enterprises are decided in accordance with the average level of skill and experience of our workers, but there is disparity between the labor ability and skill of different workers. Therefore, after fulfilling the work quotas in their enterprises, some workers still have some surplus labor capacity left. Also, the products that workers produce in their homes in their spare time are indeed marketable, make up the shortage of commodities in our market, and satisfy some of the demands of the masses.

The subjective reason is that as the socialist commodity economy has developed, over the past few years people's consumption levels have continued to rise. Our staff and workers wish to lead a better life and purchase more high-grade consumer goods, but their current wage incomes are insufficient to satisfy these demands. In addition, the shortage of production tasks in some enterprises to some extent affects the basic wage incomes of their staff and workers. This has urged the staff and workers who have surplus labor capacity to spend their spare time in undertaking side jobs in order to earn more income.

II.

As the number of staff and workers engaged in side jobs is relatively large, and as the repercussions of this practice are relatively big, the relevant departments and basic-level organizations differ in their opinions on this practice. To sum up, there are three kinds of attitude: some oppose it, some are in favor of it, and some are in favor of it with reservations.

Some comrades oppose the practice of staff and workers doing side jobs. For since some workers have engaged in side jobs, there has indeed been some unfavorable impact on their main jobs: 1) They fail to work hard in their main jobs, their work efficiency is low, and they fail to fulfill their work tasks. For example, in a leather shoe factory, the daily quota for a worker is 30 pairs of shoes, but some workers make only 20 pairs of shoes in 10 days. However when they work at home at night, they each make 40 pairs a night. 2) There is much sick leave and low attendance rates. For a time, the attendance rate in the leather upper section in the factory was only 60 percent, and that in the leather sole section was only 70 percent. This has seriously hindered the fulfillment of the factory's tasks. 3) As the income from some side jobs is higher than the staff and workers' basic wages, some skilled workers do not keep their minds on their permanent jobs and apply to resign or to be suspended from their jobs for some time. 4) Labor discipline in the factories has been affected, and some staff and workers stay away from their work without leave to do business outside their factories. 5) Some staff and workers have exploited their power of office to sell technological information and thus encroached on the interests of their factories. A very small number of staff and workers have even stolen the raw materials of their factories. Because of the above-mentioned unfavorable impact, since the document on this matter was issued to them in 1984, some units have banned the practice of undertaking side jobs, and have pointed out that side jobs do not conform to the socialist planned economy, and are a practice of the free market which has seriously affected the economic results of the enterprises. They have also stipulated that when a staff member or worker is found to be engaged in a side job, his income from the job will be confiscated, and that if the worker refuses to correct his mistake, in spite of repeated admonitions, he will be dismissed or put on probation. According to the investigation, that document has not been able to put an end to the practice of staff and workers undertaking side jobs.

For those who are in favor of this practice, the reasons are: 1) For some factories, there are busy and idle seasons for their production tasks. In idle seasons, the factories cannot guarantee their staff and workers' normal income. 2) They admit that the practice of workers and staff doing side jobs may have an unfavorable impact on factories, but say that this unfavorable impact can be overcome if the factories intensify their labor control and formulate and impose strict regulations related to attendance, work performance evaluation, and labor discipline. For example, in March 1985, the leather shoe factory revised its labor quotas and stipulated that a worker must fulfill the day's work quota and that he is not allowed to leave the factory unless he has fulfilled the quota. In some of its workshops, where piece rate wage systems are implemented, it is stipulated that those who fulfill their work quotas will be paid the piece rate in full, but that the piece rate will be reduced by 50 percent for those who fail to fulfill quotas and will be 10 percent higher for the work done in addition to the quotas. Additionally, in regard to labor discipline, the factory has also stipulated that only a living subsidy of 0.50 yuan is paid to those who are on sick leave and that a worker who stays away from work without leave for a day will be fined 5 yuan. Through the implementation of the above-mentioned control measures, the factory has to some extent overcome the unfavorable impact of the staff and workers side jobs.

Those who are in favor of it with reservations hold that the practice of staff and workers doing side jobs is a new trend under the conditions of developing the socialist planned commodity economy. Therefore, we should not adopt a "uniform" attitude toward it. In other words, we should neither be entirely in favor of it nor entirely oppose it. They hold that they support the practice given a certain condition, and that this condition is that the staff and workers doing side jobs must regard their main jobs as the foundation and regard fulfilling the tasks of their main jobs as a matter of principle. Under the condition of their refraining from affecting the tasks of their main jobs, staff and workers are allowed to utilize their spare time to do some side jobs and earn a reasonable remuneration through their labor. But they are by no means allowed to earn illegal profits through speculative activities.

III.

The question of staff and workers' side jobs is a problem that must be solved in our current reform. It has a direct bearing on our country's efforts to give play to laborers' initiative and improve its economic results. At the same time, it is also a theoretical problem that is urgently necessary at present for our country's economic theoretical circles to solve. I think that staff and workers doing side jobs is an inevitable trend and conforms to the development of our country's planned commodity economy and to our country's national conditions. My main reasons are as follows:

First, the most fundamental task in the socialist stage is to develop productive forces, to continue to increase social wealth, and to continuously satisfy the daily increasing demands of the people's material and cultural life. Our investigations have proved that staff and workers are able to find side jobs, that the products of their side jobs can be quickly sold, and this shows that the labor in the side jobs these staff and workers do satisfies social demands and is socially necessary labor.

Second, since the means of production became socialist public property in our socialist society, laborers have been freed from exploitation and oppression, but the situation of labor belonging to laborers as individuals has not been immediately removed. This is because: 1) In a socialist society, although labor has already become conscious in nature, it remains a means of gaining a living individuals and it is still necessary for a socialist society to apply the principle of material interests to give play to laborers' initiative and creativeness and for it to stipulate labor duties and discipline in the form of law. 2) The productive forces in our socialist society have not yet been fully developed and it is still impossible for society to provide, free of charge, all the means of livelihood for laborers and their dependents. In other words, it is still necessary for laborers to pay, out of the remuneration for their labor, the expense of labor reproduction and the living expenses of their dependents. Labor continues to have quotas imposed on it and to be paid for. It continues to be yardstick for social distribution of consumer goods among individuals. In a socialist society, there continues to be occupational division of labor. Therefore, in a socialist society, labor continues to belong partially to laborers as individuals, and does not belong to the whole society. Therefore, laborers have their own personal specific interests, and the side jobs that staff and workers are engaged in precisely reflect these specific interests.

Third, there is disparity in people's labor ability. A socialist society "tacitly admits the different in laborers' endowments, therefore, it also tacitly admits the natural privilege of different labor capacities." As laborers' abilities differ, so does their remuneration. The disparity between labor abilities is shown in the disparity between amounts and quality of labor. A strong laborer does not feel tired after doing a certain amount of work in a certain period of time, but a laborer with poor labor ability feels tired after doing the same work under the same conditions. Our enterprises should give the best possible play to the role of those with strong labor ability, and give them more work to do. But they should not oppose these laborers' practice of doing side jobs to earn reasonable remuneration for their labor after fulfilling the work tasks for the working day. The staff and workers who undertake side jobs are still able to do their side jobs after doing their main jobs for 8 hours every day; therefore, the income from their side jobs is the remuneration that they should correspondingly get in accordance with the principle of distribution according to labor, as they expend more mental and physical energy than the laborers who only do their main jobs.

Fourth, in the document "10 Policies Related to Further Enlivening the Rural Economy," the CPC Central Committee and the State Council point out: "Under the prerequisite of not affecting their own jobs, the scientific and technical workers who are provided with the conditions may use their spare time to render services to rural areas and earn income according to contracts." I am of the opinion that in our socialist society, our workers, peasants, and intellectuals are all laborers, and that while our peasants may become rich through labor, the staff and workers in our enterprises (including scientific, technical, and administrative workers) may also use their spare time to do side jobs. However, in order to do a good job of handling the relations between the interests of the three parties, it is imperative to adopt a series of administrative control measures over the staff and workers who do side jobs. I am of the opinion that it would be best if we strengthened our administration in the following aspects:

1. We should strengthen the administration of labor in our enterprises, perfect the various rules and regulations, and continuously raise the economic results of our enterprises. At the same time, we should also do a good job of ideological and political work among our staff and workers and strengthen education in the sense of organization and discipline. We should make our staff and workers understand that their own jobs are the main jobs, and that the side jobs must be subordinate to the main jobs. Only by so doing, can we ensure the fulfillment of the enterprises' production tasks.

2. The pay of staff and workers who do side jobs should be calculated according to the principle of distribution according to labor. The amount of labor should not be divorced from the amount of pay. In order to achieve this, the state's relevant departments at all levels must administer the side jobs of our staff and workers in various ways. The functional organizations at all levels must formulate concrete laws and regulations; the audit departments must put forward the relevant stipulations on auditing for enterprises and institutions; the taxation departments must work out methods of levying taxes on the income of workers of our enterprises and institutions who do side jobs.

/12228
CSO: 4006/680

ECONOMIC MANAGEMENT

BRIEFS

CHINA TO FINISH TESTING MANAGERS--Beijing, January 28 (XINHUA)--China plans to finish testing heads of all but its smallest enterprises this year, according to members of the committee organizing the national examinations. More than 77,000 have already taken the exams, they said, along with 4,000 would-be executives. Over 90 percent of them passed, the officials said. Examinations have been set for mid-July and late December. Part of the nationwide reform of China's system of administration, the exams are designed to encourage managers and directors of state enterprises to study economic theories, management and other subjects relevant to their work. Along with the tests, the government has begun requiring those who assume leading positions in enterprises to have been trained for their jobs. Exams for managers and directors of small industrial enterprises will begin this year and be completed within two years, the officials said. The tests are being administered by provinces, municipalities and autonomous regions. China has an estimated 400,000 industrial enterprises. [Text] [Beijing XINHUA in English 1853 GMT 28 Jan 86 OW] 12624

FINANCE AND BANKING

BRIEFS

HEBEI TAX SURVEY RESULTS--Hebei Province achieved remarkable results in the general survey of tax, financial and price work. By 10 December 1985, the province uncovered 307.9 million yuan of money which had been gained in violation of discipline. Of this figure, 196 million yuan should be turned over to the state treasury. Thus far, 120 million yuan has been delivered to the state treasury. /Text/ /Shijiazhuang Hebei Provincial Service in Mandarin 2300 GMT 2 Jan 86 SK/ 12228

CSO: 4006/680

TAIWAN

BRIEFS

ECONOMIC GROWTH PROJECTED--Taipei, 31 Jan (CNA)--The Republic of China will be able to reach its projected economic growth of 5.5 percent this year as the economic climate is turning to the better, the Council for Economic Planning and Development said Friday. In a report to the Executive Yuan on this nation's economic situation, CEPD said the devaluation of the U.S. dollar, the possible big fall of crude oil prices and the strengthening of competitiveness of this nation's products in the world market, have become favorable factors for the ROC to create higher economic growth in 1986. /Text/ /Taipei CNA in English 0248 GMT 1 Feb 86 OW/ 12228

REVISED TARIFF REGULATIONS TAKE EFFECT--Taipei, 1 Feb (CNA)--The revised import tariff regulations, promulgated by President Chiang Ching-kuo Thursday, went into force Saturday. Under the revised regulations, the maximum import tariff will be lowered to 67.5 percent from 75 percent, and the average real tariff will be lowered to 7.62 percent from 7.89 in real terms, the ministry said. The new system will also cut down import tariff rates for about 780 categories of goods and exempt tariffs for 28 categories. Traders will be required to pay more than before only when they import another 11 categories of goods, the ministry said. It is estimated that the tariff cuts will cost the nation an annual loss of nearly NT /new Taiwan/ dollar 2.3 billion (about U.S. dollar 57.5 million) in tariff income. The ministry also expressed the hope that businessmen here will reduce prices of their products in the domestic market as the lowered import tariffs help lower costs. /Text/ /Taipei CNA in English 1002 GMT 1 Feb 86 OW/ 12228

EXPORT PRICES GRADUALLY DECLINE--Taipei, 2 Feb (CNA)--The nation's export prices have showed a tendency toward gradual decrease in the past year. In particular, there have been 3 consecutive negative growth years for heavy industrial chemical products, a research survey pointed out Sunday. The research survey, conducted by the First Commercial Bank from the base year of 1979 until November 1985, says the nation's annual rate of increase for export prices declined from 11.94 percent, the rate of increase registered in 1979. Within the period, the only exception was in 1984 which was due to the recovery from recession in the U.S. market. It attributes the decline trend to the production reduction policies of the nation's heavy industrial circles. The low investment willingness in the country has caused a decrease of fixed capital investments, as investments in hardware generally took the greatest share in the development of heavy industries. The fluctuation of the export prices will determine the level of profits and will also force the manufacturers and exporting firms to adjust their production strategies, even though export prices are less important than import prices to this nation's export-oriented economy, the survey adds. /Text/ /Taipei CNA in English 0243 GMT 3 Feb 86 OW/ /12228

CSO: 4020/210

CHEN MUHUA URGES COOPERATION BETWEEN PRC TRADE ORGANS IN HONG KONG

HK310157 Hong Kong WEN WEI PO in Chinese 28 Jan 86 p 3

[Special Dispatch from Beijing: "Chen Muhua Points Out That China's Finance and Trade Organs in Hong Kong Must Attach Importance to Information and Expand Their Business"]

[Text] In an article in the current issue of the magazine ZHONGGUO JINRONG [CHINA FINANCE], Chen Muhua, president of the People's Bank of China, said that China's banks and insurance organs in Hong Kong must take the Sino-British Joint Declaration as a guiding principle in handling problems in their operations.

Chen Muhua said that in coordination with the development of foreign trade, we must energetically develop new networks and continuously expand business operations. She said: "Be it banking or insurance business, we must formulate proper development plans. As regards the volume of economic trade with foreign countries and the amount of money that can be raised, we must seek gradual development in a planned manner, distinguishing between matters that are important or less important, urgent or less urgent."

She also said that in developing business with foreign countries, we must conform with China's general line and specific policies toward foreign countries. She indicated that through business activities, we must be socially active in making friends. This plays an important role in stimulating Hong Kong's economy and stabilizing the situation.

Chen Muhua stressed cooperation between banking and insurance houses and trade organs. She said: "Chinese-financed banking and insurance houses and trade organs must have close cooperation between them and strengthen unity and mutual support. In my opinion, this is not just a problem of general relations. It is also a matter of upholding the general interest of the PRC. This should arouse everyone's attention." In the article, she appealed to bank and insurance firms abroad to play an active role in passing on information.

Chen Muhua also criticized the management level of finance organs abroad. She said that the performance of finance organs abroad, generally speaking, is marked with achievements. But they are still not good at using various means common to international finance organs in developing various operations. They must keep improving their level of operation and management.

She pointed out that organs abroad play an important role in training skilled personnel. She said that because of the long period of being shut out of the world and international financial operations, the training of skilled personnel in this field is a matter of great urgency. She said that we must make full use of favorable conditions provided by overseas organs for the training of talent. The quarters concerned in our country must seriously formulate plans, organically linking the assignments of cadres sent abroad with the business of training. Cadres posted abroad for long periods, should quickly sum up experiences and go home regularly to give briefings.

Chen Muhua also pointed out the need to rely on and set store by, the local backbone in a given trade. She said: "Overseas organs must, in the main, recruit local people as working personnel. People taken on must meet strict requirements. Those people forming the backbone in a technical or professional field, must be retained to work on a long-term and stable basis. Attention should be given to the development of their role. Newly employed workers must also be subjected to serious training and assisted in improving their relevant skills.

/12858
CSO: 4006/662

PRC OFFICIALS TO VISIT HONG KONG OVER KA WAH BANK TAKEOVER

HK280431 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS supplement) in English 28 Jan 86 p 1

[By Cecilia Ko]

[Text] Three senior officials of China International Trust and Investment Corp are expected to arrive from Beijing this week in connection with the takeover of Ka Wah Bank.

The Secretary for Monetary Affairs, Mr David Nendick, saying he expected the officials to arrive this week, added he regarded the CITIC deal as finalized, but not yet formalized.

Meanwhile, CITIC announced last night that Baker and McKenzie Solicitors and Notaries had been appointed as the legal adviser on the takeover proposal.

Last week, CITIC appointed CCIC Finance Co and China Investment and Finance Co as joint financial advisers to the plan.

It is believed that under the takeover plan CITIC will inject about $350 million into Ka Wah after writing down 90 percent of the shareholders' funds.

But the exact amount is still subject to several details being worked out.

Among the issues are questions over Ka Wah's investment in its associate companies and the level of provisions to be made on bad and doubtful loans.

The bank owns 30 percent of Singapore-based Great Pacific Finance Ltd and 50 percent of Ka Wah AMEV Insurance Ltd, a joint venture with the Dutch-based AMEV insurance group.

The amount CITIC will dump into the bank will depend on whether the Beijing corporation wants to retain these investments. The figure may change if Ka Wah's interests in these companies are sold.

It is also understood that CITIC has yet to agree on the amount of provisions on bad and doubtful loans.

That figure, which has been assessed by the Ka Wah board and the bank auditors and believed to be adequate for covering bad loans to borrowers in Singapore and Malaysia, has not changed in light of the arrest of Malaysian businessman and politician Tan Koon Swan, bankers close to Ka Wah said.

Although Ka Wah has loaned to companies associated with Tan, it did not have any direct exposure to Pan-Electric Industries which went into receivership in November.

It is believed CITIC has realized the situation and is prepared for the worst if these loans are irrecoverable.

What needs to be worked out are the details of the capital reconstruction. As Ka Wah is a publicly-listed company, shareholders have to be informed of the proposal and vote on it.

The shareholders must be notified of the details 21 days before the meeting.

A timetable on these procedures is expected to be worked out between the Ka Wah board and the visiting CITIC officials.

With the help of financial and legal advisers, the discussions are expected to be speeded up, but bankers said it would be one or two months before the takeover would be finalized.

In the meantime, CITIC might appoint someone to manage the bank.

Meanwhile, government officials have declined to comment on a report the Exchange Fund injected up to $1 billion into Ka Wah.

A report said the credit facilities extended to Ka Wah by the Hong Kong and Shanghai Banking Corp and the Bank of China in June last year came from the Exchange Fund.

It is believed that depending on circumstances, the government can deposit some of the Exchange Fund money into a bank as a means of solving the bank's temporary liquidity problem.

While that might have occurred in the case of Ka Wah, it is impossible to confirm as the affairs of the Exchange Fund are kept confidential.

But bankers close to Ka Wah said the credit facilities were structured on commercial terms and were still in place for the bank.

Mr Nendick said he could not comment on the operation of the Exchange Fund, adding there was no fixed policy on how the government assisted troubled banks.

Decisions have to be taken in light of the circumstances at the time. The preferred solution is, of course, for the banks themselves to sort out their problems. In the process, the government can act as a catalyst, Mr Nendick said.

/12624
CSO: 4020/211

MALAYSIAN POLITICIAN'S ARREST TRIGGERS HONG KONG STOCK PLUNGE

HK221032 Hong Kong AFP in English 1012 GMT 22 Jan 86

[Text] Hong Kong, Jan 22 (AFP)--Local stocks today plunged across the board by nearly 40 points amid shockwaves emitted from the detention of Malaysian tycoon Tan Koon Swan in Singapore yesterday.

The Hang Seng index finished the half day session at 1,737.94, down 38.25 points, to its lowest score this year.

Having opened sharply lower, almost all leading share prices continued to plummet on a flurry of selling triggered mainly by the Singaporean authorities' detention of Mr Tan after investigations into Singapore-based Pan-Electric industries' near-collapse, dealers said.

The dealers said many investors here linked the incident to the fate of the locally-incorporated Ka Wah Bank, which was known to have high loan exposure in some Malaysian companies reportedly linked to Mr Tan.

Ka Wah was currently negotiating a takeover deal by a Chinese state-run company, China International Trust and Investment Corp (CITIC), which was expected to take up as much as 90 percent of the bank's controlling stakes.

The market was wide with speculation that the Chinese might have second thoughts about the Ka Wah deal after what had happened in Singapore, the dealers added.

Total turnover on all four exchanges was 238.84 million Hong Kong dollars (30.6 million U.S.), against 278.42 million dollars (35.7 million U.S.) recorded in yesterday's full-day session.

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CSO: 4020/211

PROVISIONAL 1985 TRADE FIGURES FOR HONG KONG RELEASED

HK250642 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS supplement) in English 25 Jan 86 p 1

[By Robert Mayerson and Dawn Leonard]

[Text] A year-end export mini-boom brought a little much-needed cheer to Hong Kong's trade pattern as last month's domestic exports rose 3.8 percent over the December 1984 figure -- the first gain in nine months.

But the total for the year, according to provisional results released yesterday by the Census and Statistics Department, was a discouraging 5.8 percent drop in shipments of local products.

A government spokesman said last month's increase indicates the export slump may have bottomed out, but analysts warned it may be premature to celebrate after a single months' increase.

Yesterday's figures, however, show the continuation of another worrying trend.

Re-exports, which had been growing at levels exceeding 50 percent earlier in the year, advanced only 4.9 percent last month in the year-on-year comparison, as China's foreign currency squeeze affected purchases of local products.

The re-export account still grew faster than domestic exports, however, and the share of total exports accounted for by shipments of local products further declined to 56.6 percent.

For last year as a whole domestic exports were worth $129.88 billion, re-exports were up 26 percent to $105.27 billion and imports rose 3.6 percent to $231.42 billion.

As a result, the year ended with a $3.73 billion surplus compared with a $1.93 billion deficit for 1984.

This was the first time in more than 10 years that the annual visible trade account has been in the black.

But with the apparent demise of the re-exports boom, the steady increase in the value of imports is likely to catch up quickly, and last year's surplus may turn out to have been a flash in the pan.

Last year was also the first time since 1975 that domestic exports failed to grow.

Analysts attributed the poor export performance to the sluggishness of the U.S. economy, the relative strength of the Hong Kong dollar and protectionist moves in major markets.

They also said the spectacular success of local exports in 1984 made last year's performance look worse than it really was.

In fact, compared with 1983, domestic exports last year were ahead 24 percent--an acceptable growth rate over two years.

The analysts noted that a similar factor is likely to affect the trade figures in the months ahead.

Since last year's export performance was disappointing, figures for this year are bound to appear healthy in comparison.

For last month alone, domestic exports were worth $12.23 billion, re-exports totalled $9.46 billion and imports were up 9.2 percent to $22.18 billion.

The month's account was in deficit to the tune of $389 million.

Compared with November, domestic exports jumped 7.7 percent, re-exports rose 8.5 percent and imports were ahead 9.2 percent.

Meanwhile, another report by the Census and Statistics Department shows the cost of living for low income households rose 3.2 percent last year compared with 1984, while prices for middle-class families rose 3.5 percent.

Figures show the consumer price index (A) for the whole of last year rested at 159.8 and the consumer price index (B) at 160.1.

The CPI (A) and CPI (B) for last month alone jumped 2.7 percent and three percent, respectively, compared with December 1984.

Prices of fresh sea products, electrical goods, television sets and sound equipment were the most expensive commodities.

So was eating out.

Compared with November, the index for foodstuffs actually showed little change in both CPI (A) and CPI (B).

The increase in prices of fresh sea products and for restaurant meals were largely offset by the drop in the price of fresh vegetables.

Although going on a package tour or to a nightclub or discotheque was more expensive, the price of clothes and shoes fell.

Durable goods rose 1.3 percent in CPI (A) and 0.9 percent in CPI (B) due to higher cost of electrical appliances, television sets and hi-fi equipment from Japan.

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China Report

ECONOMIC AFFAIRS

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ZHAO ZIYANG, TIAN JIYUN INSPECT HENAN FROM 22 DEC

HK271253 Hong Kong LIAOWANG OVERSEAS Edition in Chinese No 3, 20 Jan 86 pp 4-5

[Article by Liu Yunlai [0491 0061 5490]: "Guiding Urban and Rural Reforms to Develop in Depth and Breadth--Zhao Ziyang and Tian Jiyun Inspect the Progress of Reform in Henan"]

[Text] Premier Zhao Ziyang and Vice Premier Tian Jiyun of the State Council went down south to the central plains and made a 6-day inspection trip to Xinxiang, Jiaozhuo, Zhengzhou, and Keifeng, Henan on the eve of 1986.

Zhao Ziyang and his party endured the hardships of a long journey in light vehicles with a small entourage. They inspected factories and villages as they drove along, holding discussions, exploring with cadres and the masses the new conditions, new experiences, and new problems emerging in urban and rural reforms, studying new measures and new methods guiding urban and rural reforms to develop in depth and breadth. Zhao Ziyang said: This time I have seen quite a few places, and they have made a pretty good impression on me.

New Trends in Rural Development

Zhao Ziyang and his party came to Henan for the inspection on the very day the National Conference on Rural Work was concluded--namely, 21 December 1985.

They arrived at Liuzhuang, Oiliying Township, Xinxiang County on the morning of 22 December, and listened to a briefing by Shi Laihe, secretary of the township general party branch. Then they visited the village-run factories, some peasant families, and pastures. According to Shi Laihe, Liuzhuang has been running some industry and sideline production in recent years, and the gross industrial output value has exceeded 5 million yuan. With the development of industry and sideline production more financial resources have been spent in purchasing farming machinery and chemical fertilizer to support the development of grain production. Now, unified work appointment of the labor force engaged in industry, sideline production, and farming throughout the village is being implemented, with the same pay for the same kind of work, and the income for each work day is more than 6 yuan whether in farming, animal husbandry, or industry and sideline production. A situation of prosperity has emerged in recent years with industry sideline production, diversified management, grain production, and animal husbandry advancing together and vying for progress in recent years.

Zhao Ziyang nodded approval upon hearing this and commented that in places where a good job is done in industry and sideline production, a good job is also done in farming. Here the key question is to help agriculture with industry, and to support agriculture with sideline production. This is true not just in a locality, and the whole country as well.

In recent years, Henan has got rid of the old track of "taking grain as the key link" in agriculture, and industry and sideline production have maintained their momentum of rapid development. However, due to factors such as the rise in prices for production means and in agricultural production costs, the peasants' enthusiasm for grain production has weakened somewhat. People are worried that the phenomenon of a gradual shrinkage in grain production will emerge along with the gradual growth of industry and sideline production. In 1985, some localities adopted such economic means as helping agriculture with industry to regulate the economic interests of different trades in the rural areas, with the aim of bringing into play the peasants' enthusiasm for grain production, and the results are obvious. In Xinxiang area, three forms have been adopted in supporting agriculture with industry: quota subsidies based on area of grain planted are given to the peasants from the income of rural enterprises; a distribution system based on unified payment is implemented among the labor force engaged in farming and the labor force engaged in industry and sideline production in the whole village; all of the village's land and farming machinery and instruments have been transferred to the management of a small number of farming experts under contracted responsibilities.

Zhao Ziyang and Tian Jiyun attach great importance to these conditions. Zhao Ziyang says that, from the trends of development, China's rural areas must solve the question of helping agriculture with industry and supporting agriculture with sideline production right in the locality. Without a solution to this question, the development of the rural areas will go away. This question should be on the agenda. The forms of helping agriculture with industry may vary, and measures must be suited to local conditions. In Liuzhuang's case, the majority of the labor force are engaged in industry, with only 8 percent of the labor force engaged in farming. And the annual grain output for each person is 60,000 jin, a very high labor productivity. In the future, family farms are likely to appear in some places like southern Jiangsu, with one household farming the land of two households and more. Such family farms have no need to employ many workers, they basically do not need to hire workers in operation, they need only a small-type tractor and a few hands to help in busy seasons. China's agriculture should take the road of combining farming with industry and specialization, and family farms, which can be described as large-scale farming households under contracted responsibility, will emerge.

In Huixian and Dengfeng Counties, Zhao Ziyang and Tian Jiyun listened carefully to the report of the responsible person of the county CPC Committee on the conditions in the rural areas. They walked into the courtyards of the peasants, and raised one question after another with the peasants. The reports of two county CPC committees and the answers of the masses have further proved the conclusions and thinking on the new trends in rural development mentioned above.

A Pressing Topic For Urban Reform

With carrying out reform of economic structure, China is gradually implementing the method of enterprise management with economic means in the main, in order to bring into play the decisionmaking power of the enterprise, and the administrative system to be adopted by key cities in leading enterprises is the key to whether it is possible to invigorate enterprises in the next step.

Before their inspection tour of Henan, leading members at the central level such as Zhao Ziyang and Tian Jiyun had noted this question. Some cities in Henan have abolished the original bureaus which directly controlled enterprises with administrative means, and established committees or offices (new organs with coordination and service as their chief tasks). The State Council leadership holds that this way is basically correct. However, why has this measure not been implemented in many other localities? Where is the actual resistance to the organic reform in key cities? That was another major problem to be investigated and studied in Henan by Zhao Ziyang and Tian Jiyun.

In Xinxiang City and Jiaozhuo City, Zhao Ziyang, and Tian Jiyun inquired again and again about local industrial leadership systems, encouraging them to explore new ways through practice, and to bring into full play the decisionmaking power of enterprises, in order that enterprises will genuinely become independent producers and managers with the initiative in their own hands.

From Xinxiang to Kaifeng, Zhao Ziyang and Tian Jiyun gained a deeper understanding of the question of organic reform of key cities, and their opinions were confirmed. On 26 December, in his speech delivered to cadres of organs directly under Henan provincial authorities in Zhengzhou, Zhao Ziyang said: Our original plan for reform was to delegate enterprises at central and provincial levels to key cities, then to work out a solution to the leadership of key cities over enterprises. How are key cities to practice leadership of enterprises delegated to them? The method of administrative departments controlling enterprises must be changed. The enterprises handed over must not be controlled by the original bureaus, with the continued separation of departments from localities. There must be a great change in the concept and style of key cities running enterprises. This will inevitably involve the organic reform of the urban areas. If urban organs do not undergo corresponding reform, without changing old concept and past practice, I think it will be very difficult to implement the decisionmaking power of enterprises, and the external combination of enterprises will be restricted. Therefore, it is imperative to put the organic reform of key cities on the agenda.

Zhao Ziyang said: I began to think about this issue when I was in Beijing and now I am being enlightened here. Through finding out about the conditions of Kaifeng yesterday, my view on this issue has been further confirmed.

Talking with the cadres of the city CPC committee in Kaifeng, Zhao Ziyang said: Now the enterprises are all being left in your charge. You are faced with reforming the administrative organs to make them suit this situation. If reform is not carried out this year, it will have to be done next year; and you do not have to wait till the central authorities and the provincial authorities have carried out their reform. Medium-type cities may reform their organs first, they have to do it anyway; the earlier the reform, the sooner they can take the initiative in their own hands. Tian Jiyun followed, saying: In organic reform, it is necessary to strengthen comprehensive economic departments, economic supervision departments, and economic judicial departments, to streamline intermediate layers, and to cut back administrative departments.

Pushing Forward Horizontal Economic Combination in a Big Way

Henan is located in the central plains, with good communications links. Henan Provincial CPC Committee regards this geographical position as its unique natural resource, and takes an active part in developing horizontal economic combinations with other provinces. So far, Henan has already signed more than 800 projects economic and technological cooperation with more than 20 provinces, municipalities, and regions, which has promoted the development of natural resources and technological progress in Henan.

Zhao Ziyang and Tian Jiyun expressed their admiration for Henan's "wise act." Zhao Ziyang said: It is very important to develop the economic and technological ties with other provinces in order to promote Henan's economic construction. If a good job is done in this work, it will bring Henan's economic construction undreamed of result. It is particularly necessary to strengthen the economic and technological cooperation with the coastal areas, bringing in Henan the technologies, qualified people, capital, and managerial experience of the coastal areas.

The responsible member of the Kaifeng City CPC Committee reported to Zhao Ziyang and Tian Jiyun on the Kaifeng cotton rubber shoes factory and Kaifeng sewing machine manufacturing general factory, which have come back to life through joint operation with Shanghai, and their tentative idea of further doing a good job in horizontal economic combination with other provinces and regions. Zhao Ziyang was very excited upon hearing this, saying: I heard that a good trend had emerged in horizontal economic combination between enterprises when I was in Beijing. Now that I can see it with my own eyes, I am left with a deeper impression. It seems that the trend of horizontal economic combination is in the ascendant. This issue should catch the attention of leaderships at all levels, and be regarded as an important issue in reform, by adroitly guiding action according to circumstances and summing up experiences to be spread.

Zhao Ziyang fully affirmed the importance of the horizontal economic combination. In a discussion with Henan's cadres at provincial level in Zhengzhou, he stressed: While carrying out the horizontal economic combination between enterprises, not only will the barriers between departments and localities be broken down, weakening the concept of departments and localities, but the structure of enterprises will inevitably be promoted in a rational direction, which could result in diverse forms of enterprise groups. Such groups are different from our department ownership and administrative companies in the past. They are developed under the conditions of mutual dependence, mutual supplement, and mutual benefits on the basis of equality of enterprises as well as centering on the needs of production development. This will inevitably result in promoting the further development of productive forces. Enterprise groups will form economic combinations, including the accommodation of funds: through combination, funds, equipment, and labor force will be used rationally, and the two parties concerned will share their development on the basis of mutual benfits.

Zhao Ziyang and Tian Jiyun said they hoped that Henan would study and explore the new problems, and new conditions in this respect. Will it be possible for transregional enterprise groups combining many trades to emerge in the future, as well as ownership by shareholders? Will it be possible for the investment targets of the state to gradually transfer to enterprise groups? How are we to transform our banking system?... A series of new topics worthy of our study are facing the leaders of economic work at all levels.

Zhao Ziyang and Tian Jiyun encouraged Henan's leaders at all levels to make in-depth investigation into reform, and to be bold in exploration in order to provide good answers for these questions.

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PRC OFFICIAL ON SOCIALIST PRICE PATTERN

HK280805 Beijing JINGJI RIBAO in Chinese 18 Jan 86 p 2

[Report: "President of China's Society of Commodity Prices Liu Zhuofu on Searching for and Establishing a Socialist Price Pattern with Chinese Features"]

[Text] At the fourth annual meeting of China's Society of Commodity Prices called not long ago its president, Liu Zhuofu, said that in searching for and establishing a socialist price pattern with Chinese features, we should clarify three points through discussion.

First, we should establish a basis for a socialist price pattern with Chinese features. He held that in principle, the socialist economy is a planned commodity economy. This provides a fundamental basis for the establishment of a socialist price pattern with Chinese features. But we still cannot confine our understanding to this stage. We must still concretely study the establishment of a concrete basis for a price pattern. This includes: 1) the functions of prices. A price pattern concerns the problem of what form price functions should assume in playing their role. Socialist price functions have not only the common character of the general functions of prices but also their own peculiar functions. In the past, our understanding of socialist price functions was one-sided. They were merely treated as a means of planned accounting, and the development of prices as a lever was limited. Through discussion in the past few years, everyone has arrived at a relatively similar view that the function of regulation is a fundamental function of prices. Socialist prices also have the function of accounting. But the accounting function of socialist prices has not only general common character but also specific character. This is to say that we not only compute the economic results of an enterprise but also work out the economic benefits for society as a whole. Socialist prices also have the function of distribution. For example, how to correctly handle the relations between the distribution function of prices and their regulating function is a problem that we should first make clear in our study of the price pattern. 2) We must consciously understand and use the law of value. Our experience in reform shows that the method of "shepherding" [fangyang 2397 5017] used to straighten out prices does not work. Our policy of opening up and enlivening things is based on an understanding of the law of value and is a way of consciously applying the law of value. In consciously using the law of value, the most important thing is to work on bringing about a balance in supply and demand where total quantity is concerned. This is to say that in line with the second meaning of the socially required time of labor as defined by Marx, we must distribute the time of labor among various sectors of the national economy. We should only liberalize prices if this is conducive to the realization of an overall balance in supply and demand. If we run counter to the law of value and negate its capacity for spontaneously asserting its role, this is wrong. But if we go to another extreme overlooking and even denying the possibility of consciously using the law of value on our part, this is equally wrong. 3) We must give consideration to conditions required for prices to assert their role. For prices to assert their functions and play the role of a lever depends on necessary conditions. The most important thing is to proceed from the national conditions of China. There are several other concrete conditions for the development of the role of prices. a) Prices must reflect value; the phenomenon of distortion must be avoided, and b) there must be a relatively perfect market system. In addition, an enterprise should become a commodity producer or operator operating on its own and assuming responsibility for its own profits and losses.

Second, what features should a socialist price pattern with Chinese characteristics have? Liu Zhuofu held that a socialist price pattern cannot be summed up only with its features in regard to the price pattern or price policy decisions. Our price pattern in future should have the following several features: 1) Where the formulation of planned prices is concerned, we should persist in taking value basis. Meanwhile, we must put the factor of supply and demand in an important position. National policy formerly formed the main basis for our setting prices. This will in future remain an indispensable basis. But there should be the following several changes: a) A national price policy must also be based on value and the changes in the relations between supply and demand. b) Under special circumstances, we may allow the prices of certain products to be detached from value and from changes in supply and demand. But this can never become a long-term universal pricing policy. In so doing, there must be appropriate measures to form part of the whole. Moreover, future national policy should call chiefly for macro control, that is, control over the general price level, and not for excessive micro control, that is, control over the formulation of concrete prices. We should increase indirect control and reduce direct control. 2) Pricing should follow multiple patterns. At present and for some time to come, we should concentrate on following the floating prices whose range is set by the state. For a number of products, unified prices and free-market prices will still be followed. This is a relatively ideal choice of price patterns at present and for some time to come. As long-term targets of pricing reform, I think that we should still have list prices, floating prices, and free-market prices existing at the same time. But we should properly increase the proportion of free-market prices. In case of need, we can also increase at any time the proportions of floating prices and list prices, depending on circumstances. 3) The price control system should involve many levels. In regard to the power of control, we should uphold the principle of combining unified leadership with control at different levels and introduce a system of control at state, regional, and enterprise levels. The state should, take controlling the general price level, maintaining the fundamental stability of commodity prices and ensuring economic growth and a gradual improvement in the people's living standard as its main task. This is done chiefly through economic means. Every effort is made to achieve a fundamental balance in overall supply and demand in a macro sense. The state must also exercise direct control over the prices of certain important commodities and the extent of fluctuation. Meanwhile, it must work out necessary laws, regulated policies, and also principles guiding the setting of prices. Under the guidance of the state, departments in charge in various areas should work out local pricing policies and pricing plans with local features in mind. Meanwhile, they should control local prices and changes for important commodities. Under the guidance of state policy, enterprises and economic units should also have the power to decide on prices--power compatible with the reform of the system.

Third, in the process of switching over from old to new patterns in the reform of the price structure, we should pay attention to the following problems:

1. Given the irrationality of our pricing system, many prices need to be readjusted. The commodities involved are often big items bearing on national planning and the people's livelihood. Contradictions between supply and demand are relatively prominent. Given sudden liberalization or sudden readjustment, the state's financial state and the capacity for absorption on the part of enterprises and the masses of people must be taken into consideration. Consideration must also be given to the fact that our market mechanism is still not perfect. Price supervision and pricing laws and regulations still leave something to be desired. The management level of cadres still falls short of requirements. Moreover, we still lack experience in management given a new situation. Therefore, we can only adopt a method of "advancing gradually" and carry out reforms step by step.

2. We must pay attention to properly handling the relations between the readjustment of the price structure in the reform of the pricing system and the general price level. The current reform of our pricing system is a structural reform. Generally speaking, this will not cause inflation. But we must also pay attention to factors causing instability in the general pricing level.

3. We must carry out the guideline of combining liberalization with readjustment and strengthen control amid liberalization and readjustment. Experience acquired at a previous stage shows that the guideline of combining liberalization with readjustment is correct. What needs to be studied now is how to strengthen control amid liberalization and readjustment. Plan-related prices that should be readjusted must be readjusted in a planned manner and cannot be freely readjusted in regard to scope and degree. Those commodities that should be liberalized also cannot be freely liberalized. In a sense, we should be able to bring liberalization to the extent that things are under control in the liberalization of commodity prices. In liberalization, we must give consideration to management and control and especially control over the general price level.

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ECONOMIC DEVELOPMENT ZONES

QINGDAO MAYOR ON CITY'S DUAL ROLE IN ECONOMIC DEVELOPMENT

Jinan DAZHONG RIBAO in Chinese 10 Nov 85 p 2

[Article by Zang Kun [5258 0981]: "Qingdao Must Step Up Foreign Import and Internal Cooperation"]

[Text] Proposals for the Seventh 5-Year Plan, approved by the [12th] CPC Congress, point out, "We must make full use of the advantages of the coastal region and other well-endowed areas by setting up different kinds of export production bases to perfect gradually an export production system. Moreover, we must step up technical cooperation, joint ventures, and cooperative enterprises between the coastal areas and the hinterland so that the interior's abundant natural resources are utilized." This provides a clear guiding principle for our drive to make better use of coastal open cities as hubs, further attract foreign capital, and establish economic links with the interior. It has profound strategic significance.

That coastal cities should seek to attract foreign capital and cooperate with the interior economically is determined by their very characteristics. It is also what their role in the nation's economic construction and technical progress demands of them. Take Qingdao, for instance. With the fourth largest handling capacity among the nation's ports, it is one of China's five major trade ports and maintains economic, technical, and trade relations with over 120 nations and regions in the world. Moreover it is a well-established industrial city, with solid economic and technical credentials and enterprises of a fairly high standard, particularly in the light, textile, rubber, chemical, electronic, machinery, metallurgical, and building materials industries. For these reasons, not only should Qingdao use its superior geographical position and miscellaneous favorable conditions to absorb and assimilate advanced foreign technology and improve its production technology and managerial standards, but it should also disseminate advanced technology and managerial experience into the interior to promote economic growth and technical progress there. Let's further look at Qingdao's objective needs if it is to develop a commodity economy. Qingdao is an industrial city in the processing mode. Its earnings from the sale of industrial products amounted to 7.82 billion yuan last year, of which local sales accounted for only 47 percent, while domestic sales made up 28 percent and foreign sales, 25 percent. Qingdao basically relies on the rest of the nation and even foreign countries for energy and raw materials. That, too, makes it imperative for it to import technology from overseas and cooperate with the interior if it is to develop economically.

Importing foreign technology and capital, on the one hand, and cooperating with the interior, on the other, constitute the two wings which enable coastal open cities to take off economically. Both are indispensable. As far as import is concerned, Qingdao has worked out 302 economic and technical cooperation projects worth a total $290 million with foreign nations since it further opened itself up last year. Most of these projects have to do with the technical modernization of the light, textile, rubber, and electronic industries, where potential is greater. A majority of the equipment and technology imported are of the general standards in advanced nations in the late 1970's and early 80's. They are distributed among the city's 178 key enterprises and will make up 75 production lines when operational. With an expected annual output value of 2.6 billion yuan, they will generate $700 million in profits and taxes. The exports they produce will rake in $50 million in foreign exchange each year, apart from saving the state $78.35 million in foreign exchange. Add the two figures and you have enough to pay off 82 percent of the import cost of the equipment. The imports, furthermore, ensure definite staying power for the future economic growth of the municipality. Now let's look at the other wing. Qingdao has formulated concrete policies and preferential measures and organized in succession the city's first national economic and technical conference and urban-rural economic and technical conference. So far it has signed agreements for 1,174 projects and attracted 310 million yuan in internal capital. It has also taken pains to attract capital from the interior to develop the tertiary sector, particularly tourism, to enhance the municipality's capacity to provide multiple services. Today over 100 interior concerns are active in Qingdao's tertiary industries and the city has attracted 280 million yuan in foreign capital.

The attraction of foreign capital and technology and cooperation with the interior also constitute a major avenue to promoting economic growth and technical advance in the hinterland. At present Qingdao has established cooperative relations with 26 provinces, municipalities, and autonomous regions and "exported" over 660 pieces of technology to cities inside and outside the province. It has launched a program of aid and cooperation with the two counties of Yishui and Yinan in the Yimeng mountain area. Since the beginning of this year, we have despatched 24 study missions to the 2 counties and have so far decided on 65 key support and cooperation projects, of which 44 are already under way. They are expected to increase output value by 17.43 million yuan this very year and generate additional profits and taxes totaling 4.317 million yuan.

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ROUNDUP ON PROSPECTS FOR GUANGDONG IN 1986

HK020706 Beijing ZHONGGUO XINWEN SHE in Chinese 0158 GMT 30 Jan 86

[Roundup by Fang Yuansheng [2455 6678 3932]: "Prospects for Guangdong in the Year of the Tiger"--ZHONGGUO XINWEN SHE headline]

[Text] Guangzhou, 30 Jan (ZHONGGUO XINWEN SHE)--The year of the tiger is approaching. Guangdong's policymaking departments have drawn up a series of plans for work in various fields. These plans have made the following impression on people: Guangdong will be active and steady in its work this year.

Industrial and Agricultural Growth Rates Will Be Lower Than Those Over the Past 5 Years

Since 1980, Guangdong's industrial and agricultural production has developed at an average rate of over 10 percent for 5 consecutive years. In the year of the tiger, its industrial and agricultural growth rates will be reduced a little. It has been initially decided that its industrial and agricultural production will increase by 9 percent over last year.

This year the state will continue to tighten up the money market, control foreign exchange, and greatly reduce the scale of capital construction. Guangdong will do the same. Last year, Guangdong had an investment of 2.6 billion yuan in capital construction. Various localities in the province are now short of funds, energy, and communications facilities, and the supply of important materials is running low. Some capital construction projects which are underway cannot be completed on schedule, and those which have been put into operation cannot produce economic results. All this explicitly indicates that if the scale of capital construction is not resolutely reduced, credit balance will be undermined and prices will rise.

However, it will not do to not carry out capital construction at all. So the effective method is to concentrate our limited funds and materials on the construction of key projects such as energy, communications, and telecommunications, which have important bearings on the province's economic development. It was reported that guarantees had been provided for the construction and expansion of power plants in Shajiao, Shantou, Haikou, Guangzhou, and Huangpu, for the preparations for using Nanhai natural gas, for the construction of the multiple track railway between Hengyang and Guangzhou, for the construction of the Yaogu-Maoming section on the Shantou-Maoning railway, for the reconstruction of Guangzhou's export highway and the province's main highways, for the development of telecommunications between Guangzhou and medium-sized cities, for technological transformation in old enterprises, and for the introduction of new technology to key enterprises. However, it is estimated that the total investment in these projects will be reduced by 400 to 500 million yuan based on the total investment of last year.

The growth rate of Guangdong's agricultural output value for this year has been initially fixed at 7 percent. Through 6 years of agricultural readjustment, the ratio between grain crops and industrial crops in Guangdong has been fixed at 7:3. This is basically rational. Guangdong will not continue to reduce the acreage under grain but will exploit its 60 million mu of uncultivated mountain slopes, 1.5 million mu of shoals along the coastline, a 2 million mu of mountain ponds and reservoirs for planting trees and fruit, mining, building power plants, and developing industrial crops, animal husbandry, and marine production. It will also develop township enterprises and run the secondary and tertiary industries.

Can Guangdong Do More Business?

Although Guangdong has decided to reduce the scale of capital construction this year, it will energetically carry out technological transformation in old enterprises. In recent years, Guangdong has gained successful experience in carrying out technological transformation in old enterprises; that is, it has combined the transformation of old enterprises with the introduction of advanced foreign technology, the carrying out of economic cooperation with foreign countries, and the business forms of "processing provided raw materials, processing according to provided samples, assembling with provided component parts, and compensatory trade." To speed up technological transformation in old enterprises, it is necessary to accumulate funds through various channels. Apart from state allocated funds, bank loans, and self-accumulated capital, using foreign capital is an important method. It seems that more emphasis will be laid on this point this year.

Guangdong has decided that this year it will introduce advanced foreign technology, foreign capital, and foreign knowledge, expand its economic and technological cooperation and scientific exchanges with foreign countries, do a good job in the construction of its special economic zones, develop an export-oriented economy, and expand commodity exports.

It has been reported that the expansion of exports would mainly cover live products, food, light industrial products, machinery, and electrical products.

In terms of policy, the province will support the work concerning "processing provided raw materials, processing according to provided samples, assembling with provided component parts, and compensatory trade." In addition, under the principle of mutual benefit, it will encourage the setting up of joint ventures, cooperative enterprises, and enterprises run with foreign capital, and will actively provide labor service for foreign countries.

It seems that a lot of business can be done in Guangdong in the new year.

Emphasis Will Be Laid on Spiritual Civilization

In the new year, Guangdong will give prominence to spiritual civilization. This is because last year some vicious practices were noticed which included reselling automobiles at a profit in Hainan, selling counterfeit medicine, manufacturing fake trade marks, showing obscene videotapes, and carrying out economic criminal activities.

This year, leading groups in charge of spiritual civilization will be formed in various cities, prefectures, and counties throughout the province. In the past, some units abolished the post of cadres in charge of political and ideological work. Now they are required to reorganize the post.

Management of social and cultural activities, literature and art works, and literature and art programs will be strengthened. The general principle is "supporting what is beneficial, allowing what is not harmful, resisting what is detrimental, and cracking down on what is criminal." Guangdong Province will require science, education, culture, health, and physical culture departments to attach primary importance to social benefits rather than to making profits. The state will allocate funds for these departments so that they can maintain and develop their operations; they do not have to rely on making profits for their existence.

It seems that Guangdong is taking a steady step in the ideological field.

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AGGREGATE ECONOMIC DATA

BEIJING REPORT ON 1985 SUBURBAN ECONOMIC SITUATION

SK050507 Beijing City Service in Mandarin 1000 GMT 24 Jan 86

[Text] On 24 January, at the ongoing municipal rural work conference, station reporter (Li Ruixiang) learned that the total industrial and agricultural output value realized by the suburban areas of the municipality last year reached 7.73 billion yuan, a 1.3-fold increase over the 3.33 billion yuan of 1980 and doubling the target in 5 years.

Through the conscientious implementation of the principle of serving the capital and making the peasants rich, and focusing on readjusting the rural production structure, over the past few years the suburban areas of the municipality have brought into line the development of agriculture, forestry, animal husbandry, fishery, industry, commerce, and transportation, construction, and service trades, and have made a breakthrough in the development of the rural and township enterprises, coordinating their production with urban industry and operating in service of the urban and rural people's livelihood. In 1985, the output value realized by the rural and township enterprises throughout the municipality reached 3.97 billion yuan, about a 3-fold increase over 1980. The rural economic development of the suburban areas was fairly even. According to statistics compiled by the municipal Statistics Bureau, 14 counties and districts at the suburban areas of the municipality had doubled their targets in 1985. Along with the economic development and on the basis of the contributions made by the suburban areas to the state, the income of the peasants in those areas notably increased. Last year, the suburban areas of the municipality had paid 430 million yuan of taxes to the state, a 3.44-fold increase over 1980; and the per capita income of the peasants was 770 yuan, a 1.5-fold increase over 1980.

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ECONOMIC MANAGEMENT

GUANGDONG URGES COMPANIES TO IMPROVE ECONOMIC SUPERVISION

HK010158 Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 28 Jan 86

[Text] The provincial forum of prefectural and city industrial and commercial administrative bureau directors, which concluded today, urged all industrial and commercial administrative departments to really strengthen their administration and supervision over the economic activities in society, to maintain the socialist economic order, and to ensure smooth progress in the economic reform.

The forum pointed out that the province will sort out and consolidate the commercial companies run by party and government departments at prefectural and city levels. Those that fail to meet the requirements will be closed, have their status lowered, or have their license revoked. All briefcase companies are to be banned. Those that violate laws in their operation will be investigated and be seriously dealt with. In addition, we must resolutely ban the activities of producing and selling counterfeit and illegal products.

The forum urged all industrial and commercial administrative departments, when administering the economic activities, to strictly follow relevant policies and regulations of the state. The business of purchasing and selling important means of production, as well as the wholesale of durable consumer goods that are in short supply, can only be handled by the state-run commercial department, material supply department, and units that produce these products. No collective or individual commercial unit is allowed to run the business.

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ECONOMIC MANAGEMENT

INDUSTRY, AGRICULTURE BOOM ON HAINAN ISLAND

OW311216 Beijing XINHUA in English 1151 GMT 31 Jan 86

[Text] Haikou, January 31 (XINHUA)--The output value of industrial and agricultural production in South China's Hainan reached more than 3.51 billion yuan (RMB) in 1985, an increase of 82.63 percent over 1980.

Meng Qingping, a senior official from the people's government of the Hainan administrative region in Guangdong Province, attributed this success to the policy of opening to the outside world and enlivening the domestic economy China has pursued in the past few years.

He said in a recent interview with XINHUA the central government has given Hainan more decisionmaking power to exercise special policies, and helped it in manpower, finance, and materials in the past few years, thus giving an impetus to the industrial and agricultural development of the island.

Hainan is China's second largest island, next only to Taiwan. It is a treasured tropical and sub-tropical land with vast sea and land resources, and abundant rainfall.

Meng Qingping said, in order to bring its natural and geographical advantages into full play, the local government has encouraged the state-owned farms, collectives and individuals to develop rubber and other tropical crops, fish farming, marine fishing, and animal husbandry, while ensuring a steady increase of grain output.

According to the statistics, the proportion of forestry, animal husbandry, fisheries, and sideline products in the total output value of agriculture increased from 62 percent in 1980 to 70 percent in 1985.

Hainan has expanded its rubber plantations by 73,600 hectares in the past 5 years, equivalent to one-third of the total area planted in the preceding 30 years. It has also planted 16,700 hectares more of other tropical crops in the same period, equivalent to 40 percent of the area used for that purpose in the 30 years from 1951 to 1980, and expanded the area of medicinal herb crops by more than 15,300 hectares--12 times over the 1980 figure.

The otuput of dry rubber reached 118,900 tons in 1985, an increase of more than 69 percent over 1980, in spite of severe drought, violent typhoons, and other calamities; that of meat came to about 8,550 tons, up by 90 percent; aquatic products, 85,000 tons, double; sugarcane, more than 3,843,000 tons, 5.9 times the 1980 figure.

Meanwhile, the island has vigorously taken measures to reform its industrial structure and upgrade its existing enterprises by using foreign capital.

It has signed more than 230 contracts on joint ventures in cooperation with foreign investors in the past 5 years, involving 294 million U.S. dollars, of which 215 million came from foreign partners.

In addition, the island has carried out economic cooperation with 24 provinces, municipalities, and autonomous regions on the mainland. They have signed contracts for more than 250 projects, involving more than 232 million yuan.

As a result, Hainan has intensified the development of its textile, electronics, and processing industries and helped some enterprises which had suffered losses for years, make profits. Its industrial enterprises made profits of 25 million yuan in 1985, up by 13 percent against 1984, and its revenue increased 2.7 times in the past 5 years.

The growth of industrial and agricultural production has helped the local people live better. The net income of the peasants reached 380 yuan per year on average in 1985, 2.7 times the 1980 figure, and the average income of industrial workers came to 1,080 yuan, up by 27.8 percent.

The past 5 years have seen a great improvement in the climate for foreign investment. Haikou and Sanya air and sea ports now have direct links to Hong Kong.

The Haikou, Sanya, Bashuo, and other harbors handled more than 7 million tons of freight in 1985, up by 46 percent over 1980, as a result of extension work.

In addition, the Haikou thermal power station is under construction, and microwave communication and television facilities from Guangzhou, capital of Guangdong Province, to Sanya via Haikou will be put into service within this year.

/9599
CSO: 4020/215

LIAONING PLANS INCREASE IN TECHNOLOGY IMPORTS

OW310812 Beijing XINHUA in English 0727 GMT 31 Jan 86

[Text] Shenyang, January 31 (XINHUA)--Northeast China's Liaoning Province plans to spend twice as much hard currency importing technology between 1986 and 1990 than during the previous 5 years.

Liaoning, a major heavy industrial center in China, will spend three billion U.S. dollars introducing 3,000 items of technology over the next 5 years, said an official of the provincial Planning Commission here today.

Foreign funds will comprise a third of this amount and will be introduced in such forms as loans, Sino-foreign joint ventures, cooperative businesses, compensation trade, and leasing.

Foreign technology and equipment will be used to upgrade 275 major enterprises and develop 450 new products in such areas as metallurgy, electronics, machine-building, chemicals, energy, building materials, textiles, and light industry.

Moreover, foreign funds will be used to speed up construction of harbors at Dalian, one of the 14 coastal open cities, and other ports. Three new airports will be built in the provincial capital of Shenyang, Dalian, and Chaoyang, respectively.

Technology imports are expected to enable 70 percent of the province's machinery to meet the advanced international standards of the late 1970's and early 1980's by 1990, compared with the present 32 percent.

The electronics industry will concentrate on developing microcomputers and microprocessors, while the Anshan Iron and Steel Company, one of China's largest, and other steel makers will import new rolling mills to boost output.

/9599
CSO: 4020/214

ECONOMIC MANAGEMENT

LIAONING ECONOMIC CONFERENCE STRESSES REFORM, REVITALIZATION

SK032234 Shenyang Liaoning Provincial Service in Mandarin 1030 GMT 2 Feb 86

[Text] With regard to the tasks for provincial economic work in 1986, the ongoing provincial economic work conference stressed the necessity of continually giving top priority to reform, further revitalizing enterprises, and preparing for making an important step in reform in 1987 and 1988.

The conference pointed out: The year 1986 is the first year covered by the 7th 5-Year Plan as well as a year for penetratingly carrying out reform. Based on the reform carried out in 1985, in line with the CPC Central Committee's demand for consolidation, mastery, replenishment, and improvement, provincial economic work should be aimed at maintaining advantages, eliminating disadvantages, solving conspicuous problems that have emerged in the course of reform. In carrying out reform, we should concentrate on revitalizing large- and medium-sized enterprises, should attend to the whole range of reforms, and should create a new situation of exercising control over enterprises but not controlling them too rigidly and making them dynamic but not chaotic.

The conference demanded: In adhering to reform, we should implement and improve the policies and measures concerning reform and continue to create external conditions for revitalizing enterprises. At present a key task is to unfailingly grasp the implementation of existing policies. All localities and departments should pay great attention to continually implementing the relevant policies formulated by the State Council and the provincial People's Government, should comprehensively inspect the implementation of policies at the previous stage, and should remove obstacles and improve specific methods in line with respective conditions. We should stress the authoritativeness of policies and solemnity in implementing policies. We should resolutely correct the illegal retention of decisionmaking powers which should be delegated to enterprises. Leading organizations and economic departments at all levels should improve their work style, give services to enterprises, and create even better conditions for the development of enterprises.

To this end, we must continue to reform the leading structure of enterprises and further implement and improve the system of plant directors assuming responsibility. Large- and medium-sized enterprises should each establish a plant management committee composed of the secretary of the plant CPC committee, deputy directors of the plant, [words indistinct], director of its trade union, and workers' representatives, with the plant director as the chairman. Such plant management committees should be regarded as organs to help plant directors adopt policy decisions for major issues. Enterprises which implement the system of plant directors assuming responsibility should also institute the system that plant directors assume responsibility for the fullfilment of tasks within their term of office. This is an important measure for correctly handling the relationship of interests among the state, enterprises, and workers and staff members, as well as a new form of the economic responsibility system.

The conference called on enterprises to continually reform the management system and make smaller units on the basis of cost accounting. Where possible, all large- and medium-sized enterprises should make smaller units on the basis of cost accounting in line with their specific situations, and stress practical results rather than formality. Continued efforts should be made to reform the personnel and labor systems of enterprises, break with life tenure for cadres, and gradually attain the goal that cadres can work at the higher or lower levels as required.

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CSO: 4006/693

NINGXIA SEEKS COOPERATION TO BOOST ECONOMY

OW310816 Beijing XINHUA in English 0751 GMT 31 Jan 86

[Text] Yinchuan, January 31 (XINHUA)--Northwest China's Ningxia Hui Autonomous Region is cooperating with other parts of China in developing its economy, according to a report in the "NINGXIA DAILY."

Last year, it signed 703 economic and technical agreements with 21 provinces, autonomous regions and municipalities, twice as many as in 1984.

A total of 616 million yuan in investment are involved in 107 economic cooperation agreements Ningxia signed in the last 2 years.

By the time the new factories and other projects contracted for are completed at the end of next year, more than 170 million yuan is expected to have been added to the region's industrial output value.

Ningxia's 900 technical cooperation agreements over the past 2 years have brought technical personnel and skilled workers into the region and have allowed local people to study elsewhere.

The agreements have led to substantial benefits for the area, the newspaper report said.

For example, the introduction in 1984 of advanced manufacturing techniques from Zhejiang Province in eastern China enabled three of Ningxia's fertilizer factories to boost production capacity by 50 percent.

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CSO: 4020/214

QINGHAI HOLDS REPORT MEETING ON CURRENT SITUATION

HK050215 Xining Qinghai Provincial Service in Mandarin 2330 GMT 4 Feb 86

[Excerpts] The provincial CPC committee and government held a report meeting on the current situation and policies in the Provincial People's Hall on 4 February. Provincial CPC committee Deputy Secretary Liu Feng made a report on the current situation abroad, in the country, and in the province. Provincial and Xining City leaders Yin Kesheng, Song Lin Shen Ling, (Hu Jijun), and others attended the gathering, together with cadres at and above office [chu] level in the Xining area.

After analyzing the current international and domestic situation, Comrade Liu Feng spoke on the current economic and political situation in Qinghai. He said: Viewing national economic development in its entirety, the province's economic development during the 6th 5-year plan could be summarized into the following characteristics:

1. A certain growth speed was maintained amid readjustment. During the 5 years, total social output value rose by an annual average of 7.2 percent, while total industrial and agricultural output value rose by an annual average of 5.6 percent. Total agricultural output for 1985 is estimated at 1.07 billion yuan, while industrial output value was 1,907,360,000 yuan.

2. There was some improvement in the proportional relations of agriculture, light industry, and heavy industry, which became more coordinated. As a result of readjustment, agriculture accounted for 38 percent of total industrial and agricultural output value, light industry for 25 percent, and heavy industry for 37 percent.

3. Economic results improved year by year. Last year local financial revenue was 233 million yuan, the highest figure recorded during the 6th 5-year plan.

4. Under the premise of upholding the position of economy owned by the whole people as the dominant factor, there was further development of a variety of economic forms.

5. The province initially opened up to the world.

6. A number of key construction projects were completed and went into production.

7. The income of urban and rural people increased and living standards improved everywhere. Average worker wage in 1985 exceeded 1,600 yuan, showing an increase of 46.2 percent over 1980. Average net income of the peasants and herdsmen exceeded 330 yuan, more than 200 percent up on the 1980 figure.

Liu Feng said: There are still many problems in party style in our province. The most prominent ones are: abuse of power; bureaucratism; political liberalism; organizational looseness; slack discipline; and lack of drive. The Central Secretariat has recently grasped party style directly. The situation in straightening out party style is very good. We must fully recognize this excellent situation and be resolved to start with the provincial CPC committee and the party committees at all levels.

Comrade Liu Feng said in conclusion: The provincial CPC committee is currently concentrating on six matters: 1) Preparing to convene its fifth enlarged plenary session in late February; 2) preparing to convene a provincial economic work conference in late March; 3) grasping the work of extricating poor areas of the province from poverty; 4) stepping up grassroots work; 5) assigning a prominent position to straightening out party style and bringing about a marked turn for the better in party style; 6) continuing to get a good grasp of disaster relief work.

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CSO: 4006/692

BRIEFS

ANHUI COPPER REFINERY--Hefei, 18 Jan (XINHUA) -- China's largest new oxygen copper refining equipment was recently put into formal operation at the No 2 Refinery of the Tongling Nonferrous Company. The annual output of crude copper at the refinery will thus increase from 30,000 to 45,000 metric tons. [Summary] [Beijing XINHUA Domestic Service in Chinese 0008 GMT 18 Jan 86 OW] /12640

JIANGXI COPPER PRODUCTION--Nanchang, 14 Jan (XINHUA) -- The annual output of copper from Jiangxi's copper-producing base reached 70,000 metric tons. Jiangxi's copper mining areas are located in the province's northeast region. They include Wushan, Chengmenshan, Dexing, Yinshan, Yongping, and Dongfang copper mines, all scattering around Poyang Hu. The total copper deposit for industrial use there accounts for one-third of the national deposit. [Summary] [Beijing XINHUA Domestic Service in Chinese 0012 GMT 14 Jan 86 OW] /12640

CSO: 4006/691

INDUSTRY

YU ZHEN ON LIGHT MACHINERY INDUSTRY'S GOALS

OW301438 Beijing XINHUA in English 1201 GMT 30 Jan 86

[Text] Beijing, January 30 (XINHUA)--China's light machinery industry has set an ambitious target for development in the next five years in a bid to keep pace with the rapid growth of light industry.

The industry will develop around 2,000 new varieties while eliminating 1,000 old products during the Seventh Five-Year Plan period (1986-1990), according to a preliminary plan released here today by Yu Zhen, vice-minister of light industry.

According to him, the total kinds of products are planned to rise from 3,000 last year to 4,000 by 1990, of which 50 percent will reach the international advanced level of the late 1970s or early 1980s.

During the Sixth Five-Year Plan (1981-1985), China's light industry witnessed rapid development thanks to the state's emphasis on consumer production.

Machines and complete plant for production of beer, tin, tobacco, garments, hides, glass for daily use, plastic, lamps and lanterns, porcelain and pottery are top priorities, he said.

To reach the set target, the vice-minister said, technological transfer from outside China should be carried out at faster pace. But he pointed out that such transfer must be beneficial to the development of China's own light machinery industry. "The aim is to improve our own level," he added.

He also asked the light machinery enterprises to cooperate to make better use of their material and other resources, [words indistinct] down regional and departmental barriers.

Statistics show that the light machinery industry has enjoyed a rapid development in the past few years. Comparing 1985 with 1980, brewing machinery increased by 89.2 percent and glass-making machinery by 496 percent; garment machinery registered a growth of 29 times over what it was five years ago.

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CSO: 4020/213

LIGHT INDUSTRY MINISTER ON QUALITY, VARIETY

OW011156 Beijing XINHUA in English 1137 GMT 1 Feb 86

[Text] Beijing, February 1 (XINHUA)--High quality is the top priority in light industrial production, and must be strictly observed even at the cost of reducing quantity.

This was stated by Yang Bo, minister of light industry, today in an executive interview with XINHUA.

He said that the industry has set itself a target for the Seventh Five-Year Plan which began this year to increase the variety, specifications and quality of the goods.

To reach this goal, the industry is to turn out more products of famous brands, he continued, citing that bicycles of famous brands will rise from 60 percent of the total to 80 percent.

Bicycles are the main means of transportation for most Chinese; around 5.4 million of Beijing's nine million people are cyclists. Their favorites are the "Phoenix" and "Forever" brands from Shanghai, and "Flying Pigeon" from Tianjin.

Electrical appliances for family use, high-grade furniture and fashionable clothes will also be developed, the minister said. And concrete measures are to be taken to lengthen the service life of washing machines.

He noted that great efforts will be made to develop more varieties like wall paper, color film, modern kitchen utensils and office equipment.

The 65-year-old minister asked all the light industry enterprises to complete quality-control systems at all levels, adding that responsibility for product quality must be made clear.

He said all the departments under his ministry "will try every way possible to keep consumers satisfied."

In the past few years, the state has adopted a series of policies to promote light industrial production and the industry has enjoyed a rapid development.

According to the statistics, the enterprises under Yang's ministry fulfilled the target set for the Sixth Five-Year Plan (1981-1985) one year ahead, with a total output value of 156 billion yuan.

During this period, the industry developed about 5,000 new varieties annually.

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CSO: 4020/213

AERONAUTICS MINISTER ON MEETING CIVILIAN NEEDS

OW280551 Beijing XINHUA Domestic Service in Chinese 0829 GMT 25 Jan 86

[By RENMIN RIBAO reporter Chen Haijiang and XINHUA reporter Li Anding]

[Text] Beijing, 25 Jan (XINHUA) -- The Ministry of Aeronautics Industry has decided to achieve a breakthrough in the research and production of civilian airplanes as quickly as possible during the Seventh 5-Year Plan period in order to turn aeronautics into an industry with balanced development in both military and civilian products and better economic efficiency.

Minister of Aeronautics Industry Mo Wenxiang said at a meeting attended by leading cadres of the ministry today: In order to provide the best-quality planes to the PLA and gradually reduce our gap with the world's advanced level, it is necessary to shift the production of military planes to meeting peacetime defense construction and use new technologies to improve the foundation and product quality of the industry.

Mo Wenxiang emphatically pointed out: The concern shown and great importance attached by the party Central Committee and the State Council for domestically manufactured airplanes have brought about a turning point in the development of the aeronautics industry. Acting on the requirement to "achieve a breakthrough, ensure quality, and carry out research and production," we must strive to achieve a breakthrough in the production of civilian planes beginning from this year. During the Seventh 5-Year Plan period, we will carry out research and production of new type passenger planes for feeder airlines and special planes for agricultural and forestry production by importing technology and cooperating with foreign countries. In striving to produce and utilize 200 civilian planes of various types and sell Chinese-made civilian planes on the international market within 5 years, we will do a good job in the domestic production of Yun-7, Yun-8, Yun-12, and revised Zhi-9 airplanes by continuously improving their safety, comfortableness, economic efficiency, and performance, as well as providing after-sale service.

Mo Wenxiang said: During the Seventh 5-Year Plan period, aeronautics industrial departments will also carry out development, readjustment, reform, and technological transformation in order to set up a production line of civilian goods, including industrial gas turbines, automobiles, motorbikes, and refrigeration equipment; at the same time, they will do a good job in transferring military technology for civilian use. By 1990, we will strive to make the output value of civilian goods 80 percent of the industry's total annual output value.

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CSO: 4006/690

INDUSTRY

GUANGDONG TRANSFORMS MACHINE-BUILDING INDUSTRY

HK031337 Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 30 Jan 86

[Text] According to the provincial meeting of heads and managers of city and prefectural machine-building industry bureaus, the province's machine-building industry has paid close attention to the work of technological transformation. It made remarkable successes in developing fine, special, and new products.

In 1985, the industry developed over 400 items of new products and 85 kinds of products with outstanding performance. Its export output value totaled more than 170 million yuan, and the industry earned over $65 million of foreign exchange.

In the past, the province's machine-building industry had a poor foundation, there was a shortage of both raw materials and energy resources. But the leading departments of the industry gave full play to the advantage that the province can easily import technology because it is located next to Hong Kong and Macao. Thus, the departments paid close attention to the work of technological transformation.

Through the import of key equipment and technology, they have developed products that conserve energy and raw materials. Therefore they have changed the situation where enterprises were installed with outdated equipment, the production process was backward, and the products had become outdated and the economic results were poor.

For example, before the technological transformation, the quality of enamel-insulated wire made by Guangdong Electrical Appliances Factory could only reach the standards stipulated by the Ministry. Now, its quality has reached international standard. Under circumstances in which the cost of copper has increased and the price of products has decreased, it has increased rather than decreased the output value, and its profits have been increased. Staff labor productivity has also been increased from 23,000 to 53,000 yuan.

In the course of technological transformation, various machine-building departments pay attention to developing fine, special, and new products, while focusing on small tractors, diesel engines, electrical appliances and some major export machinery and electrical products which support agricultural production and save energy.

In Zhonghsan City, bumper cars produced by the recreational machinery factory are sold to over 40 amusement parks throughout China, thereby saving the state's foreign exchange by over $10 million. The yeast separator, lard separator and emulsion waste water processing device made by Guangzhou Heavy Machinery Plant have reached international advanced standard.

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CSO: 4006/690

BRIEFS

SHORTAGES OF CHEMICALS TO CONTINUE--Shortages of certain chemicals, especially soda ash, will not ease until the end of the Seventh Five-Year Plan (1986-1990), the newspaper ECONOMIC INFORMATION reported. The current shortage has been created mainly by increasing demand, even though supplies of its raw materials are greater than last year. By the end of the five-year plan, three soda ash plants are expected to be completed in Jiangsu, Shandong and Hebei Provinces, with a combined annual production capacity of 1.8 million tons. By then, supply and demand should balance better, the newspaper said. The report noted that the shortage of chemicals was particularly acute in Tianjin. Of 114 products available on the market, about 42 percent are in short supply, about 30 percent are in adequate supply and about 28 percent are in surplus. Organic chemicals tend to be readily available, but inorganic ones are not. Of 81 products surveyed by the Ministry of Chemical Industry, 46 will see an increase in production this year, 26 will remain the same as last year and nine will drop. [Text] [Beijing CHINA DAILY in English 31 Jan 86 p 2 HK] /12712

CHAIRMAN SPEAKS ON EXPANDING TOURISM--Lhasa, February 4 (XINHUA)--Tibet will speed up tourism this year to spur other sectors of its economy in a move to open wider to the rest of the world, a top official of the autonomous region said here today. "We will also try to boost exports," said Doje Cering, acting chairman of the regional government. He returned to Lhasa today after attending an economic and trade exhibition Tibet put on in Hong Kong. The areas open to foreign investors include tourism, energy, textiles, foodstuff processing, services, agriculture, forestry, animal husbandry and mining. A Tibetan trade delegation struck 17 deals for export of Tibetan products worth 1.73 million U.S. dollars during the exhibition held from January 14 to 25. Moreover, 22 letters of intent on economic cooperation were also signed with firms from overseas, Hong Kong and Macao. The 2,000 exhibits included native products, Chinese medicines and Tibetan-style handicrafts. [Text] [Beijing XINHUA in English 1833 GMT 4 Feb 86 OW] /12712

TEXTILE OFFICIAL ON MODERNIZATION--Beijing, January 29 (XINHUA)--China has developed 672 new kinds of textile machines over the past five years, a Textile Industry Ministry official here said. More than a fifth of them have been judged by the ministry to meet international standards for the late 1970s and early 1980s. The ministry placed top priority during the Sixth Five-Year Plan (1981-1985) on developing more modern machinery and manufacturing facilities to help the industry's growth. Eight main schemes were undertaken, including the development of a polyester staple fiber production plant and new spinning lines. So far, 14 polyester staple fiber production lines have been made, each with a capacity of 15,000 tons a year. In addition, several machines needed for the development of new textiles were also developed. The ministry official said this new machinery would help the industry meet current market demand for more varieties and better quality. [Text] [Beijing XINHUA in English 0701 GMT 29 Jan 86 OW] /12712

FURTHER ON MACHINERY INDUSTRY'S GOALS--Beijing, January 30 (XINHUA)--China's weighing-machine industry will aim for a hefty tenfold increase in output value over the next five years, it was announced here today. To boost last year's 250 million yuan total to the 1990 target of 2.66 billion yuan, the industry will switch to making sophisticated electronic scales, said Light Industry Vice-Minister Yu Zhen. These are of superior quality to the mechanical devices produced at present. Yu told a press conference that the output of large weighing machines for industrial use would be stepped up from 230,000 last year to 350,000 in 1990. Production of smaller scales would increase from 1.1 million to 1.4 million. The industry would concentrate on producing automatic and electronic devices, and strive to reach world advanced standards of the late 1970s and early '80s. During the past few years, the industry had enjoyed steady growth, good economic results and an improving quality of products. Annual output of large machines hit the 150,000 target set for the Sixth Five-Year Plan (1981-1985) three years ahead of time, and the one-million quota for smaller scales was reached one year ahead of schedule. [Text] [Beijing XINHUA in English 1213 GMT 30 Jan 86 OW] /12712

ZHEJIANG INDUSTRIAL PRODUCTION--According to an estimate of the provincial statistical bureau, Zhejiang's gross industrial output value in 1985 is expected to reach 45 billion yuan, up more than 30 percent over that of 1984. Output value of the industrial enterprises in the province during the first 11 months of 1985 increased by 14 percent as compared with the corresponding period of 1984. The province has signed joint venture agreements covering 56 projects with a total investment of $108.6 million since 1984, a total of 890 4dvanced foreign technology and equipment were imported. [Summary] [Hangzhou ZHEJIANG RIBAO in Chinese 1 Jan 86 OW] /12640

SHANGHAI INDUSTRIAL PRODUCTION--Shanghai overfulfilled all 1985 industrial targets set forth in the Sixth 5-Year Plan, yielding total industrial output value of 82.66 billion yuan, an increase of 11.1 percent over that of 1984. The monthly growth rate was basically maintained at 11-13 percent. [Summary] [Shanghai City Service in Mandarin 0100 GMT 9 Jan 86 OW] /12640

JIANGSU INDUSTRIAL PRODUCTION--According to data released by the Jiangsu Provincial Statistical Bureau, the total output value of industrial production in the province reached 86.35 billion yuan in 1985, an increase of 21 percent compared with the previous year. Of this, total output value of heavy industry was 36.75 billion yuan, and of light industry 49.6 billion yuan. In addition, the total provincial revenue also rose by 17.8 percent compared with 1984. [Summary] [Nanjing Jiangsu Provincial Service in Mandarin 2300 GMT 16 Jan 86 OW] /12640

FUJIAN INDUSTRIAL PRODUCTION--Fujian's total industrial output value in 1985 was 19.6 percent over that of 1984. Profits and taxes turned in by state-run industrial enterprises increased by 31.4 percent. Foreign exchange earned through export of industrial goods was 9.9 percent higher than the previous year. State revenues were 20 percent higher than 1984. [Summary] [Fuzhou Fujian Provincial Service in Mandarin 1130 GMT 11 Jan 86 OW] /12640

JIANGSU'S FODDER INDUSTRY--Jiangsu has been making good progress in developing its fodder industry in past years, and has won new success in promoting production in 1985. The total output of mixed fodder reached 1.1 million metric tons, overfulfilling the state quota set for 1985 by 50 percent. [Summary [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 17 Jan 86 OW] /12640

GUANGXI METALLURGICAL INDUSTRY OUTPUT--The region's metallurgical industry's gross industrial output value in 1985 reached above the 300 million yuan mark for the first time, totalling more than 346 million yuan, an increase of 19.5 percent compared to 1984. In terms of gross output value of enterprises directly under the regional authorities, the increase was 22 percent over 1984. The output volume of steel was over 382,000 tons or an increase of 31 percent; that of pig iron was over 419,000 tons, an increase of 61 percent; that of building materials was over 300,000 tons, an increase of 26 percent; and that of iron alloy was over 57,000 tons, an increase of 41 percent. The profits and tax delivery realized by the industry also reached over the 100 million yuan mark for the first time, totalling more than 127.03 million yuan, an increase of 72 percent over 1984. Of this amount 103.83 million yuan came from enterprises directly under the regional authorities. [Summary] [Nanning Guangxi Regional Service in Mandarin 1100 GMT 30 Jan 86 HK] /12640

CSO: 4006/690

PRC OFFICIALS ON RURAL HOUSE-BUILDING BOOM

HK310511 Beijing CHINA DAILY in English 31 Jan 86 p 1

[Article by staff reporter Zhu Ling]

[Text] China's fast-developing rural economy has generated an unprecedented house-building fever in the country's villages and townships.

Last year, an estimated 9.6 million rural households build new homes, compared with 9 million in 1984, according to Xu Zongwei, an official of the Ministry of Urban and Rural Construction and Environmental Protection.

New construction covered some 770 million square meters, and 15 percent of the newly-built houses were two or three-storeyed, Xu told CHINA DAILY yesterday.

Sixty percent of the new housing is of brick and tile, he said. When construction started again in 1978, after the hiatus of the "cultural revolution," 57 percent of the new housing was of sun-dried brick and thatch.

Farmers' investment in new housing last year is expected to have greatly exceeded the 1984 total of 30 billion yuan, Xu said.

Xu said rural people now spent an average of 16 percent of their annual income on housing improvements, compared with 5 percent in 1980.

From 1949 to 1978, Chinese farmers built an average of 100 million square meters of new homes a year. From 1979 to 1985, they built an average of more than 600 million square meters a year.

Since 1979, when sweeping rural economic reforms began, an estimated 50 million-plus rural households have moved into new homes. China now has 180 million rural households.

The Ministry's Deputy Minister, Lian Zhong, predicted that annual housing construction in rural China from 1986 to 1990 would average about 700 million square meters and the building of two or three-storey houses would increase from the present 13 percent to 20 percent.

Rural people are expected to invest u 59 200 billion yuan in new housing between 1986 and 1990.

"After food and clothing, the top demand in the rural sector is for housing," Xu said.

Farmers' per capita income last year approached 400 yuan, compared with 355 yuan in 1984. Last year, rural bank deposits hit 72 billion yuan, 18.1 billion yuan more than in 1984.

To cope with the construction boom the Ministry of Urban and Rural Construction, launched by the State in 1982, has been working on individual construction plans for millions of rural towns and villages; they are to be completed this year, said Xu.

The purpose of the planning is to economize on the use of land, and devise scientific layouts for residential, industrial, agricultural, public and shopping areas.

Now construction plans for 85 percent of the country's 5 million villages and 84 percent of the 54,000 rural towns have been drawn up, the official revealed.

More than 500,000 newly-trained rural planners and surveyors have worked on the planning with the help of urban experts, he said.

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CSO: 4020/213

BRIEFS

NEW AIRPORT FOR XIAN--Xian, January 30 (XINHUA)--China has decided to build an airport in Xianyang City, 20 km northwest of Xian, capital of northwest China's Shaanxi Province, local officials said today. The Xianyang Civil Airport, a key project of the country's Seventh Five-Year Plan (1986-1990), is designed to accommodate Boeing 747s and to occupy five sq km. Equipped with advanced facilities, the airport is expected to handle 23 million passengers a year when completed in 1989. It will also open up air routes to Hong Kong, Japan and countries in Southeast Asia. Preparations are under way for the construction of the airport, which will start later this year and cost 240 million yuan (about 80 million U.S. dollars). There is also a civil airport in the provincial capital of Xian, which is one of China's most famous tourist spots. It attracted 200,000 foreign tourists last year, and is expected to receive half a million foreigners a year by 1990. [Text] [Beijing XINHUA in English 0659 GMT 30 Jan 86 OW] /12712

WATER DIVERSION PROJECTS PLANNED--Beijing, February 3 (XINHUA)--Two water diversion projects are scheduled to start this year for two Chinese cities in an attempt to ease their water shortage problems, according to local and international newspapers today. The water diversion project in Xian, capital of Shaanxi Province and one of the most famous tourist attractions in China, includes a reservoir with a storage capacity of 170 million cubic meters, 89 km of pipelines and a waterworks with a supply capacity of 600,000-800,000 cubic meters per day. According to the SHAANXI DAILY, when the first stage of the project is completed in 1988, it will supply the city with 450,000 cubic meters of water per day, doubling the present water supply. The project, which will divert water from the Heihe River west of Xian and cost 500 million yuan, will ease the city's water shortage and stop the lowering of the underground water level and surface subsidence due to the excessive tapping of underground water. Qingdao City in Shandong Province, which has a supply of 210,000 cubic meters of water per day--half the actual need--will divert water from the Yellow River to beef up the supply, according to the overseas edition of the PEOPLE'S DAILY. [Text] [Beijing XINHUA in English 1039 GMT 3 Feb 86 OW] /12712

ANHUI RIVER PROJECT--The State Planning Commission recently approved construction of the Xin'an Jiang project. The project, which calls for a total investment of 83.75 million yuan, will serve navigation, power generation, irrigation, flood prevention and tourist purposes when completed in 1990. It will enable vessels of as much as 300 metric tons in Huizhou Prefecture to sail directly from Tunxi to Hangzhou, Zhejiang. The power stations slated for the project will have a combined installed capacity of 13,800 kilowatts. [Summary] [Hefei Anhui Provincial Service in Mandarin 100 GMT 23 Jan 86 OW] /12640

KEY CONSTRUCTION PROJECTS--In his report to the regional meeting of banner and county CPC Committee secretaries, Comrade Bu He said: A group of key projects has been completed during the Sixth 5-Year Plan period. Ten of these key projects have been put into operation, including the Tongliao glassworks, the Chiefeng wool mill, and the Yuanbaoshan power plant. A total of 22 single-item projects have gone into operation, including an opencut coal mine in the south of Huolinhe, and the No 1 (Jiu) and No 1 (Baorixile) coal mines of the Yimin coal mining area. During the Sixth 5-Year Plan period, generating sets with a capacity of 1.3 million kw were newly added, the newly added coal mining capacity reached 8.94 million tons, the newly added timber lumbering and transport capacity reached 290,000 cubic meters, 480 km of railway track where laid, 3,984 km of roads were newly built or rebuilt, and two bridges spanning the Huang He were built. Greater progress had also been made in postal and telecommunications undertakings, and communications facilities. The completion of these communications and energy resources projects and other key projects has strengthened the reserve force for our region's development during the Seventh 5-Year Plan period and in the near future. [Text] [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 24 Jan 86] /12640

CSO: 4006/690

BRIEFS

URBAN COMMODITY CIRCULATION SYSTEM--As a prelude to the reform of commerce in cities, the rudiments of an open, multi-channel commodity circulation system with few bottlenecks and good social results have now emerged. This is the unanimous view of the delegates to the 12-city experience exchange seminar on financial and trade work which closed today in Hangzhou. Commodity retailing, formerly a closed transaction, has now become open. The market for agricultural sideline products is thriving. Joint operations and marketing are widespread nationwide, breaking down regional barriers. There are now more urban commercial points than at any other time in history. [Text] [Jinan DAZHONG RIBAO in Chinese 6 Nov 85 p 3] 12581

RURAL TRADE FAIRS--Rural trade fairs, which number in the tens of thousands nationwide, have become an important channel in the circulation system for agricultural sideline products. Data provided by the State Industry and Commerce Administration show that there are now over 56,000 rural trade fairs across the nation and that their volume of business grew 66 percent in the first half of this year compared to the same period last year. Rural fair trade grew 36 percent, while its urban counterpart rose 78 percent. Overall, rural trade fairs continued to register an increase in business during the third quarter this year and rural trade fair prices are gradually being stabilized. [Text] [Jinan DAZHONG RIBAO in Chinese 6 Nov 85 p 3] 12581

CSO: 4006/536

STATE COUNCIL'S REGULATIONS ON FOREIGN JOINT VENTURES

Regulations To Be Adopted

HK210424 Beijing CHINA DAILY in English 21 Jan 86 p 1

[Article by staff reporter Liu Dizhong]

[Text] Flexible new measures are to be adopted to help Sino-foreign ventures get around the problem of foreign currency account deficits.

The moves are part of the nation's efforts to make equity joint ventures easier to run and accommodate the interests of foreign investors, said Gu Ming, head of the Economic Legislation Research Centre under the State Council, in an interview with CHINA DAILY.

The measures--including import substitution--are laid out in a set of new "Regulations of Foreign Currency Balance of Equity Joint Ventures," which is to be issued this week by the State Council.

For variety of reasons, not all equity joint ventures have a favourable balance of earnings in foreign exchange from which the investor may draw to send profits abroad, Gu said. Neither is it possible for a developing country like China to use its scarce foreign exchange reserves to subsidize joint ventures running a deficit in foreign exchange earnings, he added.

The new regulations are based on other countries experience and Chinese circumstances. Flexible features include the following:

-- If a joint venture approved by departments at national or local level is running a deficit, the department concerned may draw on the foreign exchange reserves of all equity joint ventures under its administration to help out that particular enterprise;

-- If a foreign investor brings in advanced technology to produce sophisticated and internationally competitive products, with the approval of authorities concerned, higher quotas of domestic sales for longer period will be considered;

-- If import substitution is approved by central or local authorities, domestic sales at international prices will be encouraged and foreign currency will be made available by the authorities to enable the ventures to balance in foreign currencies;

-- Equity joint ventures may quote prices and settle accounts in foreign currency if their products are sold to Chinese enterprises having foreign currency reserves, subject to the approval of the state foreign exchange control departments;

-- Foreign investors are allowed to establish two or more equity joint ventures on Chinese soil and they may pool the legitimate foreign currency earnings of all these joint ventures instead of trying to balance the books of individual ventures;

-- In the case of a joint venture with a foreign currency deficit, the state encourages the foreign partner to re-invest his share of RMB [Renminbi] earnings in another joint venture with a foreign currency surplus, enabling the foreign partner to send his legitimate profits abroad.

Equity joint ventures were started in 1979 and are one of three main methods China uses to attract foreign investment. The other two are contractual joint ventures and wholly-owned foreign companies.

Since then, about 1,890 Sino-foreign joint ventures have been set up throughout the country involving a total investment of $2.8 billion.

Despite these flexible policies, Gu stressed that the regulations still urged all equity joint ventures to promote exports and strive for a favourable balance in foreign exchange earnings.

Regulations Issued

OW280410 Beijing XINHUA Domestic Service in Chinese 0038 GMT 26 Jan 86

[Text] Beijing, 26 Jan (XINHUA)--The State Council's Regulations on the Balance of Foreign Exchange in Joint Ventures Using Chinese and Foreign Investments. (Promulgated by the State Council on 15 January 1986)

Article 1: These regulations are issued to encourage foreign investors to set up joint ventures with Chinese firms, to assist them to balance their foreign exchange in order to contribute to their production and business operations, and to assist them to remit their legally-earned profits to foreign countries.

Article 2: Products manufactured by Chinese-foreign joint ventures should mainly be exported to earn foreign exchange, so that a balance in foreign exchange can be achieved.

Article 3: The adjustment of income and payment of foreign exchange of Chinese-foreign joint ventures set up according to law should be made by reviewing and approving authorities at various levels.

Adjustment of income and payment of foreign exchange of Chinese-foreign joint ventures, set up with the approval of responsible authorities of the state, should be made by responsible authorities of the state with the income in foreign exchange of all Chinese-foreign joint ventures in the nation. It may also be made according to a ratio agreed by responsible authorities of the state and local people's governments. Adjustment of income and payment of foreign exchange of Chinese-foreign joint ventures, set up with the approval of local people's governments or departments concerned of the State Council, authorized by the State Council, or commissioned by responsible authorities of the state, should be made by the local people's governments or departments concerned, with the income in foreign exchange of Chinese-foreign joint ventures set up with the approval of local people's governments or departments concerned.

Article 4: Favorable terms in percentage of domestic sales, and in the period permitted for domestic sales, may be given to high-technology products or internationally-competent high-quality products made with advanced or key technologies offered by foreign investors, if these products are badly needed domestically, and after they have been evaluated and approved by responsible authorities according to reviewing and approving procedures set up by the state. Such domestic sales should be specified in an agreement between supplier and customer.

Foreign exchange balance plans of enterprises stipulated in previous sections are to be drawn up by the responsible authorities approving the plans, in accordance with the prescriptions stipulated in Section 2 of Article 3 of these regulations. Foreign exchange balance plans drawn up by authorities approving the plans should, according to administrative procedures, be submitted to the Ministry of Foreign Economic Relations and Trade or local economy and trade departments for examination and opinions, and then submitted to the State Planning Commission or local planning commission for approval before they can be incorporated in a long-term or annual foreign exchange-expenditure plan.

Article 5: Products which have to be imported on a long-term basis, or urgently, may be replaced by similar products manufactured by Chinese-foreign joint ventures, provided they are approved by responsible authorities of the State Council or local departments concerned on the basis of the quality and specifications of these products, as well as on how these products are imported. Such replacement should be specified in the agreement on setting up the joint venture, or in an agreement between supplier and customer.

Economic and trade departments should actively support domestic purchase units in signing purchase-marketing contracts with Chinese-foreign joint ventures mentioned above, based on international prices. The plan to use foreign exchange by these units should be subject to the prescription stipulated in Section 2 of Article 3 of these regulations; it should, according to administrative procedures, be submitted to the Ministry of Foreign Economic Relations and Trade or local economy and trade departments for examination and opinions; and should then be submitted to the State Planning Commission or local planning commission for approval before it can be incorporated in a long-term or annual import and exchange-expenditure plan.

Article 6: In order to achieve a balance of foreign exchange, Chinese-foreign joint ventures, with the approval of departments of foreign economic relations and trade, may use a foreign co-investor's marketing network to export domestically-produced products for repayment. However, special approval must be obtained from the Ministry of Foreign Economic Relations and Trade for the export of products under the state's unified management, those subject to an export quota, or those requiring an export permit. Chinese-foreign joint ventures are not allowed to deal in the import and export of such products without prior approval.

Article 7: Authorities concerned will not be responsible for adjusting the imbalance of foreign exhange resulting from the failure of Chinese-foreign joint ventures to accomplish their committed export and foreign exchange-earning tasks, as stipulated in agreements concerned.

Article 8: Products sold by Chinese-foreign joint ventures to enterprises with foreign exchange-paying ability, in areas other than special economic and economic and technological development zones in coastal open cities, can be settled in foreign currency, with the approval of foreign exchange administration departments of the state.

Article 9: When the foreign exchange legally earned by Chinese-foreign joint venture(s) is surplus, while the foreign exchange earned by other enterprise(s) co-invested by the same foreign investor, entering two or more joint ventures in China (including different localities and industries), is deficient, the foreign investor is allowed to adjust the foreign exchange earned by his enterprises, with the approval of foreign exchange administration departments of the state.

Concurrence among all partners of the joint venture should be obtained before making the adjustment mentioned in the above section.

Article 10: With the approval of departments of foreign economic relations and trade and foreign exchange administration departments, foreign investors in Chinese-foreign joint ventures who fail to achieve a foreign exchange balance may use the profits in Renminbi earned from their joint ventures to reinvest in enterprises in China which will generate new foreign exchange, or increase their foreign exchange income according to the prescription stipulated in Article 7 of "The Law on Joint Enterprises Using Chinese and Foreign Investments." In addition to enjoying the preferential treatment of receiving a refund of part of their paid income tax, these foreign investors will earn foreign exchange from income newly generated by their reinvested enterprises, and may remit their legal profits to foreign countries.

Article 11: These regulations are applicable to Chinese-foreign cooperative enterprises in China, and joint enterprises and cooperative enterprises set up in inland China by companies, enterprises, or other economic organizations in

Hong Kong, Macau, and the Taiwan area. They are also applicable to joint or cooperative enterprises invested by overseas Chinese.

These regulations are not applicable to financial and insurance enterprises or the like set up in China by foreign co-investors. They are also not applicable to similar enterprises established in inland China by co-investors in Hong Kong, Macau, and the Taiwan area.

Article 12: These regulations shall govern where any regulations on the balance of foreign exchange of Chinese-foreign joint ventures established before the promulgation of these regulations are in conflict with these regulations.

Article 13: The Ministry of Foreign Economic Relations and Trade shall assume responsibility for interpreting these regulations.

Article 14: These regulations will go into effect as of 1 February 1986.

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CSO: 4020/207

FOREIGN TRADE AND INVESTMENT

3,000 ADVANCED TECHNOLOGY IMPORTS PLANNED FOR 1986-88

Shanghai JIEFANG RIBAO in Chinese 27 Nov 85 p 1

[Article by Huang Huachu [7806 5478 0443]: "More Technology Imports Planned for 1986-88"]

[Text] The State Economic Commission has decided that in addition to the 3,000 pieces of technology imported from abroad during the past 3 years, China will import a similar number of pieces of advanced technology in the first 3 years of the Seventh 5-Year Plan to promote the technological modernization of Chinese industry.

Most of the several thousand pieces of technology and equipment imported in the last 3 years of the Sixth 5-Year Plan reached international standards of the 1970's and early 80's. They have broadened our technological thinking and vision, raised the technological level of industry, and enhanced our capacity for self-reliance. The next 3,000 pieces of technology to be imported will be more geared toward the major thrusts in our industrialization, based on the present circumstances and needs of our enterprises. They will include know-how and key installations to complement or help assimilate what we have imported in the last 3 years. They will be the technology for making some of the products in short supply, particularly basic parts and components. They will be technology which can help light, textile, and electrical machinery industries upgrade and modernize their products and earn more foreign exchange. They will be the technology of quality control, standards testing, and so on.

The State Economic Commission has demanded that extra caution be exercised in determining our imports, that centralized import planning be carried out, and that foreign exchange be tapped in a multitude of avenues. In addition, scientific research, design, standards, and patent departments must strengthen feasibility research.

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CSO: 4006/532

FOREIGN TRADE AND INVESTMENT

DURATION OF JOINT VENTURES MAY BE EXTENDED TO 50 YEARS

Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 13 Dec 85 p 1

[Article by Yang Guojun [2799 0948 6874]: "Extension of the Duration of Joint Ventures Under Consideration"]

[Text] It has been learned from the second national working conference on economic law and theory currently being held in Guangzhou that the duration of Chinese-foreign joint ventures may be extended from 30 years to 50 years. Joint ventures which have specifically been approved by the State Council may last beyond 50 years.

A State Council official attending the conference has told reporters that the council is currently considering the extension of the duration of Chinese-foreign joint ventures. An announcement is expected within this year.

A decision in favor of extension will amend Article 100 of the "Regulations for the Implementation of the Law of the People's Republic of China on Joint Ventures Using Chinese and Foreign Investment." The article stipulates that in principle the duration of most joint ventures will range from 10 to 30 years but that projects which require massive investments and have a long turnover period and a low return rate may last beyond 30 years.

The decision mainly affects projects with the above characteristics, particularly those in which the foreign partner provides advanced, crucial technology to make state-of-the-art products able to compete in the international marketplace. It is understood that advanced, crucial technology consists of transducer technology, complex materials technology, genetic engineering, circulating and long-distance communications, and biophysics.

The official noted that the decision to extend the duration of joint ventures would facilitate the implementation of the open door policy, help attract more foreign capital, and introduce more advanced technology and scientific managerial experience.

He said, "Since we are in the process of drawing up legislation on Chinese-foreign joint ventures and wholly foreign-owned enterprises, the duration issue will be considered when we discuss the legislation."

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CSO: 4006/532

FOREIGN TRADE AND INVESTMENT

EXPERTS PRAISE FUJIAN'S STRATEGIC LOCATION

Fuzhou FUJIAN RIBAO in Chinese 24 Nov 85 p 1

[Text] Mr Newman, who is in charge of the Asian and Pacific section of the United Nations Industrial Development Organization [UNIDO]; Mr Mi Li Ge, director of its investment promotion office in New York; and Mr Yi Er Ge, an expert with the investment promotion office in Cologne, talked to the press on the second floor of Dushan Exhibition Center at noon yesterday. They are here to attend the Fujian investment promotion symposium. In their opinion, "Fujian occupies a special strategic position, a base oriented toward the Pacific." They expressed the hope that "this symposium will be an exceedingly fruitful one and that more foreigners will realize the excellent prospects of investing in Fujian."

They began by noting that the goal of the UNIDO is to assist developing nations through industrial development. They said that their agency does not make investments as such, but rather acts as an intermediary between the partners of a project. They likened themselves to a "matchmaker" in search of capital. It is their aim to facilitate the flow of capital.

About their opinions of the Fujian investment promotion symposium, they said that its major objective is to provide a forum where people can negotiate deals. They hoped that China and delegates from other nations and regions can talk to one another face to face and tackle substantive matters, primarily joint ventures, compensation trade, industrial fund-raising and technology import, in order to enable Chinese products to make their way into the international marketplace. In short, it was their hope that through the symposium, everybody can get something he wants, whether it be technology, market, compensation trade, or a cooperative enterprise.

Why was Fujian chosen as the site of this symposium? They said, "Fujian occupies a special strategic position. It has the Xiamen Special Economic Zone. Fujian is a base oriented toward the Pacific. Its proximity to the trade center also makes it ideal as a venue for an investment promotion symposium. Through this seminar, we hope to sum up some of our experience and pass it onto China. The seminar is only the beginning. China must step up follow-up activities, ie., project evaluation, result assessment and adjustment to get a project really off the ground and running. Projects must be transformed into so many plants, so many joint ventures."

They also disclosed that to make the symposium a success, the UNIDO and its offices in New York and Cologne mounted a major publicity campaign to familiarize businessmen and firms with the purpose of the symposium and get them better acquainted with Fujian. In the United States, 150 firms requested project details from the New York office, while the Cologne office advertised the investment projects in the West German publication, FOREIGN TRADE NEWS, several times. They have also invited Fujian to send people to their offices so that together they can do a better follow-up job.

Finally, they praised the good work of the Xiamen municipal government and the symposium's organizing committee in preparing the meeting and said that it had been a pleasure working with them.

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CSO: 4006/536

HEBEI SIGNS LETTERS OF INTENT FOR GEOTHERMAL DEVELOPMENT

Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 28 Nov 85 p 3

[Article by Hou Zhiyi [0186 1807 5030] and Yu Shaoliang [0060 4801 5328]: "Hebei Develops Geothermal Resources with Foreign Cooperation"]

[Text] Stepping up cooperation with foreign investors to develop geothermal resources throughout the province, Hebei has recently signed letters of intent on cooperation in that field with such nations as Canada, Austria, and Japan.

Under Hebei regulations, foreign investors can undertake geothermal development on their own or in conjunction with Chinese partners. The net profits of a joint venture shall be distributed between its partners in accordance with the proportion of investment. The enterprise will revert to Chines ownership after 25 years.

Hebei abounds in geothermal reserves. According to prospecting surveys by the geological agency, medium- and low-temperature geothermal resources ranging from 40- to 90-degrees Celsius have been found underneath one quarter of the province's area, or 50,000 square kilometers.

They include the 60 billion cubic meters of proven reserves in the central plain, a region with the greatest potential for geothermal exploitation and development in east China.

So far the province has drilled 260 geothermal wells, of which over 90 have produced good results. Local governments have been making use of geothermal energy to build public bathhouses and convalescent homes, to incubate young chicks and to breed tropical fish. In Xiong County, energy from a geothermal spring was used to put up a tannery with a daily output of 120 pieces of sheepskin, all high-quality leather completely tanned by geothermal water. The use of geothermal energy saves the tannery 30,000 yuan in fuel costs each year.

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CSO: 4006/532

FOREIGN TRADE AND INVESTMENT

TIANJIN INVESTS IN 17 JOINT VENTURES OVERSEAS

Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 13 Dec 85 p 1

[Article by Cong Wenzi [0654 2429 3320]: "Tianjin Investments Overseas"]

[Text] It has been learned from the Tianjin Foreign Economic Relations and Trade Commission that so far Tianjin has established 17 Chinese-foreign joint ventures in such nations and regions as the United States, Canada, Japan, and Hong Kong. Of these 17 joint ventures, 10 are in trade while 7 are industrial concerns.

Total Chinese investments in the 7 industrial joint ventures amount to $4.47 million, or 42.4 percent of overall investments.

Tianjin's joint ventures overseas can be found in rod welding, shoe-making, condiments, non-staple foodstuffs, textiles, pig-raising and die manufacturing.

Most of the enterprises which invest overseas have modern facilities in Tianjin, along with formidable technical know-how and solid economic strength, and are the makers of brand-name Tianjin products. The Tianjin Welding Rod Company, whose well-known Youngjiu brand of welding rod is exempt from international testing, has set up a joint venture with Pakistan, the Chinese-Pakistani Friendship Welding Rod Co., Ltd. Its contract provides for an annual production capacity of 6,000 tons of welding rods.

The establishment of a joint venture abroad usually involves investments by both the economic and foreign trade agencies in Tianjin. This arrangement helps ensure that the project is really implemented in all its different aspects. In selecting projects, they begin with modest ones and then work their way to bigger undertakings.

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CSO: 4006/532

SPECIAL ECONOMIC ZONES

GUANGDONG'S SHANTOU SPECIAL ZONE

Development Plans

HK130703 Beijing ZHONGGUO XINWEN SHE in Chinese 1438 GMT 9 Jan 86

[Text] Guangzhou, 9 Jan (ZHONGGUO XINWEN SHE)--Liu Feng, chairman of the Shantou Special Economic Zone administration, has said: The zone has laid an initial foundation in industry with a certain degree of adaptability. In the new year, we must give full play to its role as an Overseas Chinese native place and work hard to develop the export-oriented economy.

Liu Feng continued: Since its establishment at the end of 1981, the Shantou Special Economic Zone has strengthened its ties with natives of Shantou residing abroad, and compatriots in Hong Kong and Macao, to seek their contributions to the construction of the zone through its advisers group and investment and consultancy company in Hong Kong. In addition, the zone also adopted some preferential policies for their investment. By the end of 1984, 42 foreign and Hong Kong companies had invested in the zone. In 1985, foreign investors who came to the zone increased by a big margin. From January to November, 1985, contracts for 25 investment projects were signed, with a total investment of HK$180 million. A number of investment projects are still under discussion.

Liu Feng also said: From the very beginning of its founding, the zone has developed industry and tourism in adherence to the principle of relying mainly on foreign funds in capital resources and giving first place to the development of industrial production and export business. Meanwhile, it also built a certain number of horticultural gardens, orange orchards, fishing grounds, and wild animal breeding farms by making full use of the advantages of Shantou such as intensive and meticulous farming, its long coast line, and abundant aquatic resources. Moreover, over 80 percent of manufactured goods of the zone such as plastics, clothes, electronic toys, carpet, porcelain, and artificial ornaments are sold in world markets, and products for export also include some farm and aquatic products.

Liu Feng concluded: From now on, the Shantou Special Economic Zone administration will adopt the principle of using advanced foreign technology to exploit local natural resources, develop local major industries, and promote local scientific research. Priority will be given to importing technology for the development of the electronics, plastics, petrochemical, food-processing, up-to-date packing, textile, and other light industries. This will help build the zone into a base for the processing industry which is mainly aimed at export of local products.

Investment Conditions

HK100539 Hong Kong SOUTH CHINA MORNING POST in English 10 Jan 86 p 11

[Compiled by Timothy Jim]

[Text] Extensive business discussions between representatives of Shantou City and overseas traders--stemming from a recent symposium--has resulted in 52 contracts amounting to over US$1.7 billion (about HK$13.2 billion) by the end of last year.

Shantou was the most successful of all the 19 areas represented in the symposium.

Its biggest single project was worth US$600 million (about HK$4.6 billion).

So despite a relatively late start compared to other special economic zones [SEZ's], Shantou leaders have put 3 years of effort into improving investment conditions and devising a set of laws and regulations to protect investments and profits and instil confidence in the SEZ's potential investors.

They deemed it a good sign when central government approved the expansion of the SEZ's geographical and administrative boundaries which would add favourably to the long-term development.

The decision has made Shantou unique.

Up to the end of last year, no other municipal government has ever shouldered such a large responsibility.

With a population of 730,000, the 256 sq km city administers eight counties and six districts as well as the newly designated SEZ.

The total area under Shantou's administration is 10,346 sq km, containing 8.95 million people.

Moreover, the central government gave the green light for Shantou SEZ to extend to a total area of 52.6 sq km, consisting of the 22.6 sq km Longhu and the 30 sq km Guangao districts.

While this will allow the SEZ to take full advantage of its natural geographic conditions, officials are careful not to embark on too ambitious plans.

When Shantou first opened as a special economic zone in 1979, priority was given to developing the Longhu industrial section.

The first two batches of factory buildings suitable for light industries are in use, and projects to build office and trade buildings, a fire station, foreign investors' apartments, and the third batch of factory buildings will begin soon.

The aim now is to create further favourable investment and living conditions to attract foreign investors.

These will include a customs office, banks, and insurance companies, a transformer substation, microwave telecommunications, computer-controlled telephones and telex systems.

Meanwhile, officials in Longshu said they particularly welcome investments in electronics, plastics, and chemicals manufacturing; textiles, leather, and food processing; agricultural tourism and property developments; and light industry and infrastructural projects.

The Longhu industrial section is built on flat, dry land. It is above sea level and is not susceptible to tidal floods.

Its surface is fine sand, under which clay loam, and construction work can be carried out on it after levelling.

Guangao, on the other hand, is placing more emphasis on developing petrochemicals industry.

Of its total 30 sq km of land, two-thirds will be alloted to building an integrated petrochemicals complex. The district will also serve as a rear supply base for the South China Sea oilfields.

In northwest Guangao, where a beautiful natural bay is located, 10 sq km has been set aside for a residential centre incorporating financial and commercial buildings, holiday villas, workers' apartments, and entertainment facilities.

In 1983 Shantou's total output value reached a record high of RMB$4 billion (about HK$11.2 billion).

Improvement Attempts

HK100537 Hong Kong SOUTH CHINA MORNING POST in English 10 Jan 86 p 11

[Compiled by Timothy Jim]

[Text] Shantou is fighting unrelentingly to catch up with the time and opportunities it has lost to the other three special economic zones [SEZ's].

The biggest hurdle to be overcome is lack of capital, said the deputy director of the Shantou SEZ administration, Mr Chen Xufan.

Describing Shantou as the "poor little son" of Guangdong Province, Mr Chen said much of the province's capital has gone to "bringing up" the other two more precious sons, Shenzhen and Zhuhai.

"The idea of the central government is to let the other SEZ's develop first. So it was not until December, 1980 that we got the go ahead," he said.

Building an infrastructure began in September 1982 and so far about 270 million has been spent in turning what was originally a swamp into factory workshops, a port, and other facilities.

The provincial government put up about $427,000 for initial investment.

"This is the smallest single lump sum given to any of the three SEZ's in the province," Mr Chen said.

The formation of the second border at Shenzhen alone received about 540 million from the provincial government, he said.

In addition, both Shenzhen and Zhuhai are exempt from provincial tax for 5 years. This means Shenzhen will have a tax saving of about 540 million, said Mr Chen.

But a similar request to the provincial government for tax exemption for Shantou had been turned down, he said.

By 1982, a new provincial policy will be implemented to make Shantou District financially self-supporting. It will be allowed to keep 55 percent of its tax money.

Mr Chen said revenue from tax for the whole district amounts to about 118.8 million a year. Of this amount, more than 81 million is basic government expenditure.

Of the remaining 27 million to 37.8 million, roughly 30 percent is allocated for the whole district's development budget.

"This means the Shantou District government can only allocate a little over six million yuan (about 16.2 million) for the development of the SEZ," Mr Chen said.

"The idea of being self-supporting, on the other hand, has its merits," he said.

"For if we strive harder, we may generate a greater development fund for the SEZ."

Meanwhile, the provincial government has relented and agreed to set up a special fund which will increase progressively to assist Shantou.

So by the time the self-supporting policy comes under review in 1989, Shantou SEZ can expect to receive more than 81 million in extra subsidy.

The SEZ would attract more funds from joint ventures with foreign investors and other mainland provinces as well as bank loans, Mr Chen siad.

Mr Chen said: "The central government has to let Shenzhen develop first, which is understandable.

"And the Guangdong provincial government has to let Shenzhen and Zhuhai develop first, which is also understandable."

The theory was that emphasis should first be placed on developing Shenzhen because of its concentrated population and material resources. After experience was gained there, development of Shantou began at the end of 1981.

"Shantou's development was based on a practical and realistic style of work, and the area's natural advantageous conditions and resources," Mr Chen said.

Early in 1984, Mr Hu Yaobang, the general secretary of the Communist Party and other Central Committee members visited Shantou City.

Mr Gu Mu, a member of the Secretariat of the Central Committee and state councillor, also inspected the SEZ later the same year.

In November 1984, the State Council officially approved expanding Shantou to 56 sq km. Shantou City also became entitled to the same preferential treatment as China's 14 open coastal cities.

Meanwhile, Mr Chen maintained Shantou officials are psychologically prepared to accept less favourable treatment and are only too keen to initiate their own strategy.

They have formed one of the biggest and brightest think-tanks of consultants from Hong Kong, Macao, Singapore, Thailand, and the United States, not to mention those from Shanghai and Beijing.

In August last year, a group of prominent Hong Kong and Macao business and industrial bosses were asked to help speed up development of the SEZ.

Among them were the vice-president of the Chinese Manufacturers Association, Mr Ngai Shiu-kit, and the chairman of the Nanyang Commercial Bank, Mr Chuang Shih-ping.

Others included Hong Kong property tycoon Mr Li Kashing and members of the Hong Kong Shantou Trading Association and Chaoyang Trading Association.

Economic Results

HK270428 Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 20 Jan 86

[Text] In the course of capital construction, Shantou Special Economic Zone acted according to its capability when developing the area. It also emphasized economic results, therefore achieving successes.

The capital construction projects of Shantou Special Economic Zone was started in March 1982. In connection with the special conditions of the zone, the administrative committee of Shantou Special Economic Zone formulated the capital construction principle of making overall planning, acting according to its capability, and developing in stages.

Over the years, Shantou Special Economic Zone allocated 70 percent of its limited capital to the development of production trades, energy resources, transportation, telecommunications, and so on.

It has built a 110 kilovolt-ampere [words indistinct] transformer station and berths for ships with a tonnage of 3,000 tons; has bought small freighters and offered them for sailing between Shantou and Hong Kong; and has completed installation of 1,500 telephone sets. Over the past 3-odd years, the total area of construction sites in Shantou City has been 329,000 square meters. By the end of 1985, it completed 160,000 square meters of the construction sites. Most of the projects are industrial plants, warehouses, airport, and other productive ones. Some are residential, commercial, and tourist projects, as well as those facilities for daily necessity.

Since Shantou Special Economic Zone developed the area step by step, it has achieved better economic results. By the end of 1985, the zone completed the construction of 12 blocks of light industry plants. Of them 10 were sold, and 46 industrial enterprises started operation in the plants. From 1984 when the zone's capital construction began bringing returns to the end of 1985, the zone accumulatively collected a total profits and tax delivery equivalent to 60 percent of the investment sum of capital construction.

/9599
CSO: 4020/206

SHENZHEN'S AGRICULTURAL EXPORTS 50 PERCENT OF GROSS OUTPUT

Beijing RENMIN RIBAO OVERSEAS EDITION in Chinese 27 Dec 85 p 3

[Text] Shenzhen's agriculture, export-oriented and geared to earning foreign exchange, has made rapid progress. Over the past 5 years, the municipality's agricultural, animal husbandry, and fishery sectors have established over 600 technically advanced commodity production bases.

Statistically, agricultural exports make up 50 percent of Shenzhen's gross output this year. Its agricultural exports to Hong Kong alone are worth 500 million Hong Kong dollars, of which 300 million are net earnings after accounting for such expenses as technology and equipment imports totalling 200 million Hong Kong dollars.

Shenzhen has developed its agriculture with the international market in mind. It goes out of its way to gain access to information on changes in the Hong Kong market and loses no time in modifying its product mix and variety and improving quality, standard, packaging, and supply methods to suit consumers' changing demands for foodstuffs. It is by catering to what the Hong Kong consumer wanted and acting quickly, for instance, that Shenzhen managed to sell 9 million live chickens to Hong Kong this year. Eighty percent of the people in Hong Kong are Cantonese who have always liked local chicken. Over the past several years, however, the Hong Kong market has been flooded with foreign chickens. Zeroing in on this situation, Shenzhen introduced a new, high-grade chicken known as "sanhuang" by crossbreeding longgang and huang chickens with other breeds. "Sanhuang chicken" pleased the Hong Kong palate so much that it soon captured one third of the colony's live chicken market.

Hong Kong consumers are becoming more and more sophisticated. To adapt to this trend, Shenzhen is making a major effort to develop high-grade products. In recent years, the state-run Xixiang Pig Farm in Poan County has eliminated high-fat pigs and bred a new breed which produces lean pork. The latter has found much popularity in Hong Kong.

Situated at the Zhujiang delta where fresh water meets salt water, Shenzhen over the past few years has earned a handsome profit from aquaculture. Using Japan's rafting method of oyster-breeding, it succeeded in expanding its oyster-breeding grounds and boosting output. This year it exported over 20,000 dan of fresh oysters and taken in over 20 million Hong Kong dollars in foreign exchange.

12581
CSO: 4006/532

TRANSPORTATION

SHAANXI SHOWS DECREASE IN VOLUME OF RAILROAD FREIGHT TRANSPORT

HK031327 Xian XIBEI XINXI DAOBAO in Chinese No 2, 13 Jan 86 p 1

[Report: "Shaanxi Railroad Freight Transport Situation Eases"]

[Text] The strains on railroad transportation in Shaanxi have been replaced by slackness. The Baoji and Ankang Railroad Bureaus in particular do not have much to transport. In previous years, the fourth quarter was always busy with industrial production and railroad transportation. However, the situation was quite different last year. It is said that as a result of the state's stricter macroeconomic control and its curtailment of capital construction and construction in the mining industry, the volume of freight transport decreased. The diversion of part of the short-distance freight transport from the railroads to the highways can be accounted for, by the additional charge for the transportation of goods for a distance of less than 200 kilometers. Naturally, there should be a decrease in the volume of railroad freight transport. However, behind this slackness there are problems. For various reasons, the railroad departments could not, or even dared not, transport some goods although there was plenty to be transported.

Less locally produced coal was transported to other provinces. Last year it was at first planned that 1.3 million tons of coal produced by local mines would be transported to other provinces. However, because of polyarchical management and the additional charge, the province could transport only 800,000 tons of coal to other provinces, about 500,000 tons less than in 1984.

Chemical fertilizers did not sell well last year. Last year, the marketability of chemical fertilizers produced by the province was affected by the presence of imported chemical fertilizers on the market. Some of these chemical fertilizers would have been sold to Shanghai and Guangzhou were it not for the restrictions. Consequently, there was an overstock of chemical fertilizer and yet the railroad departments had little to transport. Last year, the Baoji Railroad Bureau tried its best to make things as convenient as possible for those who transported chemical fertilizer by train. Disregarding whether or not its service was called for by the plans, and whether or not its service might impede its regular work, it simply transported chemical fertilizer for whoever asked it to do so. Even by doing this, last year it transported 50,000 tons less chemical fertilizer than required by the plans.

Last year, phosphate was not marketable. The quality of the phosphate produced by the province was quite poor (most has a phosphate content of less than 23 percent). Last year, the sales of locally produced phosphate were also affected by imported phosphate. According to the plans, the Ankang Railroad Bureau should transport 100,000 tons of phosphate. However, it transported only 23,000 tons, 77,000 tons less than the planned amount.

Things were less difficult with the Xian Railroad Bureau, which had much coal to transport. However, it still had difficulty fulfilling the transportation task assigned by the provincial authorities.

Last year's slackness is far more a bad sign than a good one and it will have some undesirable consequences for 1986. It is said that both the Baoji and Ankang Railroad Bureaus have to formulate less ambitious freight transport plans this year. The former will transport 350,000 tons less and the latter 410,000 tons less than last year. However, the Xian Railroad Bureau expects an increase of more than 800,000 tons, mainly because it can count on its monopoly of coal distribution. All the departments concerned should pay close attention to this problem.

/9599
CSO: 4006/692

TRANSPORTATION

PRC'S SUCCESSFUL TRIAL FLIGHT OF 'PETREL' MULTIPURPOSE PLANE

HK310227 Beijing ZHONGGUO XINWEN SHE in Chinese 1001 GMT 17 Jan 86

[Text] Nanchang, 17 January (ZHONGGUO XINWEN SHE)--The "Petrel" multipurpose plane, which was developed by Nanchang Aircraft Corporation, recently passed it's experimental test flight. The plane is another new product in the series of planes developed in China for civilian use.

The "Petrel" plane was transformed and designed based on the model of the Trainer-6, which won a gold medal at the national quality appraisal meeting. The plane's effective carrying capacity is 700 kilograms and highest speed is 290 kilometers per hour. The plane comes in three models, A, B, and C. These have various types of equipment fits so that it can be used for multiple professional purposes. The results of the experimental test flight show that the plane can fly deviating only 1.5 meters from the operational altitude and carry out operations at low altitude. The plane's low-flight altitude is 3 meters lower than the standard international operational altitude set for civilian planes. The plane's other functions also exceed or approach the standard of advanced professional planes of other countries in the world.

According to the Nanchang Aircraft Corporation spokesman, the "Petrel" multipurpose plane will be exported this year.

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CSO: 4006/692

TRANSPORTATION

SHAANXI TO OPEN HUANG HE TO LARGE CARGO SHIPS

HK310645 Beijing CHINA DAILY in English 31 Jan 86 p 3

[Article by staff reporter Jing Jun]

[Text] A provincial government has resolved to take the lead in harnessing the wild Yellow River by opening a transport route designed to handle large cargo ships.

The Shaanxi Provincial Government has decided to embark on an ambitious plan to build a 586-kilometre water route along the raging Yellow River this year. Experts have mapped out detailed plans to eliminate dangerous rapids and then to reinforce the river banks, provincial authorities announced this week.

The task of taming this section of the Yellow River was approved by the government after it received appeals from people along the river banks who suffer from the flooding and hard living conditions created by this most difficult of all China's rivers.

The economic purpose of the project is to create a route to carry coal from the Yulin Region on the middle and lower reaches of the river. More than 100 billion tons of coal deposits remain untapped because of acute transport difficulties, the government officials said.

The new navigation plan is intended to help local people tap other resources within this section of the river as well, according to the provincial government.

Shipping coal from the Yulin Region has been a dream of the province for years. Although it is located in the cradle of Chinese civilization, the river has been left behind in modern development. While it remains unutilized, the economy in the basin area is held back. The difficulties of harnessing the river has seemed insurmountable.

But the current plan to create a safe water course for big ships to transport coal is regarded as a sound remedy. It links the direct economic results of taming the river to the development of the region's rich resources of minerals.

Experts say the focus of the country's economic development is expected to shift gradually from the coastal areas to the western areas--a vast area with rich natural resources. It has been planned that the development will move westwards along the Yellow and Huai Rivers which flow east to northern and central China.

Coal deposits along the Yellow River, especially its middle reaches within Shaanxi and Inner Mongolia, amount to 60 percent of the country's total reserves. Making this section of the river into a transport artery is the key to developing the region.

The 5,464 kilometre river is China's second largest and its drainage area extends for 750,000 square kilometres. The river basin makes up about 8 percent of the country's area.

Despite the rich resources along the river, people living on its banks still lead a hard life. Half of the country's poor counties are situated along the river where the average annual income of the farmers is only about half of the national average.

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CSO: 4020/214

BRIEFS

DEEP-WATER BERTHS--Beijing, 28 Jan (XINHUA)--China last year completed 33 deep-water berths capable of accommodating 10,000 dwt ships, according to the Ministry of Communications. This has brought the total number of such berths in the country to 206 and they have a combined handling capacity of 300 million tons of cargo a year. During the 6th 5-Year Plan period (1981-1985), construction started on a total of 132 deep-water berths. China has now altogether 62 ocean-going shipping companies totalling 3 million dwt, ranking ninth in the world. [Text] [Beijing XINHUA in English 1443 GMT 28 Jan 86] /9599

INLAND DOCK IMPROVEMENTS--Beijing, 4 Feb (XINHUA)--China plans to improve the facilities at 41 inland docks in the next few years, according to the overseas edition of the PEOPLE'S DAILY today. After completion, the improvements will add 60 million tons of freight capacity a year. The Ministry of Communications has decided to earmark 1 billion yuan for the plan. The docks are located at cities along the Yangtze, Zhujiang (Pearl), Heilongjiang, and Huaihe Rivers, and the Beijing-Hangzhou grand canal. [Text] [Beijing XINHUA in English 0759 GMT 4 Feb 86] /9599

JIANGSU'S NANJING PORT--Preparations have been made to open Nanjing Port for foreign vessels in the near future. Arrangements have also been made to provide living, cultural, and medical facilities for foreign sailors. Nanjing Port is China's largest inland port. [Summary] [Nanjing Jiangsu Provincial Service in Mandarin 1100 GMT 17 Jan 86 OW] /9599

YUNNAN SIMAO-LANCANG ROAD--The first phase of the Simao-Lancang road, a key project in Yunnan Province, was opened to traffic today. The length of this phase of road is 77 kilometers. Now, trucks fully loaded with goods can go to (Hulushi) along the banks of the Lancang Jiang, and along the banks of the (Hei) He respectively, from the (Cuiyun) District in Simao and from the Lancang County seat. The Simaro-Lancang road has been built by the people with public subsidies. This is the first time this method of operation has been adopted by our province. Construction of the road commenced in September 1984. By the end of January this year, 5.8 million cubic meters of earth- and stone-work, 71 percent of the total work of the project and 135 kilometers of the roadbed, had been completed. [Summary] [Kunming Yunnan Provincial Service in Mandarin 1100 GMT 27 Jan 86 HK] /9599

SICHUAN-XIZANG ROAD REPAIRED--As a result of mud-rock flow, the (Kuolong) section of the Sichaun-Xizang road has been damaged for nearly 8 months. After 67 days of rush repairs by the Xizang Regional Road Administrative Bureau, this section was opened to traffic on 25 January. On 29 May last year, an extraordinarily large mud-rock flow occurred continuously at the (Kuolong) section. The mud-rock flow damaged the road, swept motor vehicles away, and engulfed houses. The losses were very serious. On 19 November last year, the Regional Road Administrative Bureau's (Kuolong) rush-repairing command organized construction forces to begin rush-repairs. [Summary] [Lhasa Xizang Regional Service in Mandarin 1130 GMT 27 Jan 86 HK] /9599

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China Report

ECONOMIC AFFAIRS

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ECONOMIC DEVELOPMENT ZONES

JIANGSU COASTAL CITY BOOSTS FOREIGN TRADE

OW061051 Beijing XINHUA in English 1036 GMT 6 Feb 86

[Text] Nanjing, February 6 (XINHUA)--Economic dealings with the outside world are expected to bring 730 million yuan extra output value a year to the coastal city of Nantong, an official here said.

In addition, they will boost its foreign exchange earnings by 30 million U.S. dollars a year.

Nantong, in Jiangsu Province, has over the past two years signed 130 contracts with the other countries and regions, including 40 involving foreign funds.

The city is situated on the lower reaches of the Yangtze River, and is one of 14 coastal cities which were opened to foreign trade and investment in 1984.

Foreign funds totalling 35 million U.S. dollars (112 million yuan) have already enabled work to start on 21 development schemes. The 130 foreign contracts involves the import of 100-million yuan worth of technology and equipment. Almost half of this equipment is now in operation.

The city's economic dealings have helped modernize existing enterprises, especially its textiles, which it is well-known throughout the country.

Equipment imported from the Federal Republic of Germany has enabled the city to turn out top-quality polyester fabrics, which have led to dozens of new textile products to be sold in China and abroad.

Advanced technology has helped Nantong raise the quality of its products, and make them more competitive on the world market. The city has started to export TV sets, radios and tape recorders.

City authorities have now decided to expand economic dealings with the rest of the world to cover new trades and industries. They have agreed to provide facilities and implement economic policies, which, they believe, will be beneficial to foreign investors.

/6662
CSO: 4020/218

AGGREGATE ECONOMIC DATA

JIANGSU'S RURAL ECONOMY CONTINUES TO GROW

OW070907 Beijing XINHUA in English 0833 GMT 7 Feb 86

[Text] Nanjing, February 7 (XINHUA)--The rural economy continued to grow rapidly last year in Jiangsu Province, east China, local authorities said today.

Expanded production was led by industries owned by townships and villages, which increased their output 60 percent over 1984, to 36.3 billion yuan.

Such industries paid their workers four billion yuan in wages, and this meant 80 yuan for each member of the province's rural population.

In addition to paying taxes amounting to two billion yuan, the industries paid about 700 million yuan of their profits to township governments and village committees, a large part of which was used to assist farm production.

Agricultural output reached 22.8 billion yuan, up 17 percent.

Rural income averaged 492 yuan per capita, 11 percent more than in 1984, compared to the national average of 400 yuan.

The growth was sustained despite such natural adversities as rainstorms, hail, typhoons and an unusually long wet spell.

Last year's output of oil-bearing seeds, silk cocoons, tea and aquatic products all registered good increases, the authorities aid.

Grain output was 31.15 million tons--230,000 tons less than in 1984. Still, the province was able to send a surplus of 1.5 million tons to other parts of China.

Last year, in line with national policies, the province expanded its responsibility system--linking income with output--from farming to forestry, animal husbandry, sideline occupations, fisheries, rural industry, commerce and service trades.

/6662
CSO: 4020/201

AGGREGATE ECONOMIC DATA

BRIEFS

PRIVATE ECONOMY 'NEARLY' DOUBLES--Beijing, February 14 (XINHUA)--China's private economy nearly doubled last year, its output value totaling 85.9 billion yuan, 88.4 percent more than 1984, ECONOMIC DAILY reported today. Private retail sales have reached 12.6 percent of China's total, increasing 87.6 percent to 54 billion yuan last year, the paper said. According to government figures quoted by the paper, more than 17 million Chinese work in the private economy, which includes all individually owned, nonagricultural enterprises ranging from individual fruit carts to laundries. New private businesses last year included technological and information services, tourism and food processing. Overall, 34.8 percent more people worked in the private economic last year than in 1984, the paper said. Leading the growth in participation were private transportation and construction, both up by more than two-thirds. [Text] [Beijing XINHUA in English 0707 GMT 14 Feb 86 OW] /6662

1985 CAPITAL CONSTRUCTION STATISTICS--Beijing, February 10 (XINHUA)--China completed and put into operation 97 large- and medium-sized capital construction projects, plus 134 single units, according to a State Statistical Bureau announcement here today. The bureau said 35 percent of the 97 projects and 72 percent of the 134 items were for energy, transport and communications. They included a 600,000 kw power plant in Inner Mongolia and a 430-kilometer double-track, electric railway from Beijing to the port city of Qinhuangdao. Other construction was in metallurgy, building materials, chemicals, machinery, textiles and light industry. Still greater priority must be given to energy, transport and communications in future capital construction and other projects should be strictly controlled, the bureau stated. [Text] [Beijing XINHUA in English 0909 GMT 10 Feb 86 OW] /6662

CSO: 4020/201

ECONOMIC MANAGEMENT

PRC JOURNAL ON STRENGTHENING MACROECONOMIC MANAGEMENT

HK141041 Beijing JINGJI GUANLI in Chinese No 12, 5 Dec 85 pp 3-6

[Article by Wang Dacheng [3769 1129 2052] and Wu Hongguang [2976 5725 0342]: "Several Questions Concerning the Strengthening of Macroeconomic Management"--edited by Pan Shucheng [3382 6615 3397]

[Text] At the end of last year, several major problems emerged in the economic life of our country. These were inflation in fixed asset investments, loss of control over consumption funds, over-issuance of banknotes, and a drastic decline in foreign exchange holdings. People began to pay close attention to strengthening macroeconomic control. Although the situation has currently turned for the better, we are still looking for a way to establish an effective macroeconomic management system.

At the moment, Western countries are maintaining a slow economic growth rate. In 1984, the economic growth rate of the United States was 6.9 percent, while that of Japan was 5.8 percent. In the Soveit Union and East European countries, economic conditions also improved to a certain extent. In the field of macroeconomic management, all these countries can provide certain worthwhile experiences for us to follow. This article will disucss several problems in regard to strengthening our country's macroeconomic management in light of the experiences of foreign countries.

Placing The Focal Point in Macroeconomic Management on Achieving A Balance Between Social Gross Supply and Social Gross Demand

For many years we have emphasized the correct handling of the proportionate relationship between agriculture, light industry, and heavy industry, and the proportionate relationship between accumulation and consumption, and have set the concrete demand of achieving balances in the four large sectors of finance, credits and loans, material resources, and foreign exchange. Western economists believe that their objective should be to strive for a full employment rate, as far as possible for only a slight degree of currency inflation, and for prolonged growth rate and a balance in international payments. We believe that although socialism and capitalism are radically different from each other in nature, they agree completely with each other in that in macroeconomic management they both seek the realization of a balance between social gross supply and social gross demand. Based on this, we should plan and set up a macroeconomic management system and should no longer endeavor as in the past to suit everything to unrealistically high targets and high speed.

In our opinion, to do a good job in macroeconomic management in our country and to realize a balance between social gross supply and social gross demand, the key lies in controlling the scale of investment in fixed assets, particularly in capital construction. This is because capital construction investments have all along occupied a predominant position in the balancing of our country's finance, credits and loans, material resources, and foreign exchange. For example, in 1984, of our country's 146.5 billion yuan in financial expenditure, that devoted to capital construction amounted to up to 47.86 billion yuan, or 32.6 percent, occupying first place in financial expenditure. Of the gross amount of bank loans, capital construction loans likewise occupied a large proportion. As for materials and foreign exchange, a sizable portion of each was taken up by capital construction.

Western economic theory holds that investment occupies an exceedingly important position in economic activities. It is not only the starting point of production and reproduction, but is also expected to generate a series of direct and indirect effects. Hence, governments of various countries are exceptionally concerned with the effects and influence of investments.

Over the past 30 years and more in our country, due to the excessively large scale of capital construction for a prolonged period, economic development has failed to achieve the results it should have obtained. As for the economic causes, it may be said that the several major readjustments made were a result of the excessively large outlay in capital construction. In recent years, the "investment hunger disease" has become aggravated daily. The "Sixth 5-Year Plan" originally called for a gross volume of capital construction investments amounting to 230 billion yuan. This target had already been exceeded during the first four years, and it is anticipated that the results of the enforcement of the "Sixth 5-Year Plan" will show an eccess over the planned target of over 40 percent. During the 30 years prior to 1980, in only three years--1958, 1970, and 1978--were capital construction investments found to have exceeded the preceding year by 10 billion yuan or more. But in recent years, for many years in succession, capital construction investments have each year exceeded the preceding year by 10 billion yuan. The extent of the increase has greatly surpassed the country's tolerance level financially and economically.

Inflation in the scale of capital construction has brought with it many problems. First of all, it has inappropriately stimulated production's superspeed development, bringing about the evil consequences of high speed,high consumption, poor quality of products, and low economic benefits. Second, it has intensified the rise in commodity prices. Because roughly one-third of the capital construction funds are usually directly converted into consumption funds, inflation in the scale of capital construction not only brings about a state of stringency in the supply of the means of production such as energy and raw materials, but also causes the means of consumption to rise in price in a chain reaction. More importantly, in the initial period of the reform of the economic structure, if relatively plentiful financial power and material resources are wanting, then no ground is left for maneuvers and readjustment.

It is true that keeping the growth of consumption funds within reason has an important significance in regard to the realization of the equilibrium between social gross supply and social gross demand, but in comparison with the control of capital construction investments, it takes second place. Control of the scale of capital construction will make it relatively easier to bring about a balance between social gross supply and social gross demand.

In controlling the scale of capital construction, it is important to have a unified understanding from top to bottom and overcome the ideas of being eager for quick success and instant benefits and seeking big and quick accomplishments. At the same time, it is necessary to take effective measures in administrative, economic, and legislative spheres. For example, letting the Planning Commission "take charge" of the examination and approval of capital construction projects, temporarily withdrawing power upward and allowing only the State Planning Commission and the planning committees at provincial levels to have the power of examining and approving capital construction projects; raising the interest rates on capital construction loans; investigating and affixing the responsibility of individuals for erroneous policy-making in capital construction; and so on.

Strengthening the Scientific Nature of Planning Work

In our country, planning work is the nucleus of macroeconomic management. The many errors in past economic work may frequently be traced to the defects in planning work. Hence, in strengthening macroeconomic management we must improve planning work and heighten its scientific nature. Although capitalist countries do not follow a planned economy, their methods of doing governmental intervention work are well worth our reference. In 1955, the Japanese Government, following completion of economic recovery, formulated in succession nine medium-term and long-term socio-economic development plans, including a "5-year economic self-support plan," "Doubling the national income plan," "New 7-year Socio-economic Plan", and so on. These plans were mostly completed satisfactorily and have helped in effectively promoting Japan's social and economic development. These medium-term and long-term plans of Japan generally possessed the following special features: 1) Embodying concrete and clear-cut plan targets; 2) Taking international and domestic advantageous and disadvantageous conditions into consideration; 3) Mobilizing financial groups and enterprises to take part in compiling government plans; and 4) Making the guidance thought of the plans aim at seeking real interest benefits and not necessarily speed or a show of impetus.

Among the socialist countries, Hungary's planning work has some special characteristics. Hungary's planning commission is formed by the heads of the economic departments, more or less like the Standing Committee of ministers' meeting. The economic reform in Hungary has continuously reduced the scope of the central government's mandatory plans but fully respected the law of value and, on the basis of extensively using such economic levers as prices, wages, and taxation, widened the scope of guidance plans. More recently, the Soviet Union has also stressed improvement in its planning work. They believe that

Lenin's idea of converting the state planning commission into a scientific economic organization formed by congregating together noted scientists and principal specialists should be realized, and that the plans should give a prominent place to quality targets reflecting the growth of the labor productivity rate built on the foundation of the effective use of resources, a large-scale renovation of products, and scientific and technological progress.

We believe that based on our country's conditions, our planning work should be improved as follows: 1) Conversion from principally working on fixed targets, diversified investments, and grasping main projects to mainly stressing the study and formulation of strategies, targets, and major policies for socio-economic development; 2) Changing the practice of initially determining the growth speed and then turning back to work out the other targets to starting from society's actual needs and feasibility of the plan and then determining the ratio and speed of the development of the various departments; 3) Having planning work not only determine the targets, but also map out the measures to realize and control the targets, without leaving too large a gap or having the disparity between reality and the plan to be too large; 4) Based on the principle of controlling the big issues firmly and well and liberalizing and easing control on the minor issues, reducing the scope of mandatory plans while enlarging the scope of guidance plans and regulation by market mechanism; but, be it guidance planning or mandatory planning, respecting the role of the law of value and fully using economic levers; 5) Overcoming subjectivism and the tendency to do things at will, paying close attention to market and information feedback, and stepping up economic forecasting work; 6) Rectifying the practice of a small group of people "working behind closed doors" and broadly mobilizing the enterprise circles and theoretical circles to actively participate in the formulation of plans, and, if necessary in the formulation of important plans, inviting the whole people to take part in the discussions just like the former case of the people's participation in the discussions on the Constitution; 7) Having the formulation and adoption of important plans go through a legal procedure, and in the event of serious errors, investigating the legal responsibility of the relevant departments and their responsible personnel; and 8) Improving the planning methods and improving the quality and standard of the personnel engaged in planning work, subjecting the planning personnel to a rigid system of rewards and punishment, and highly rewarding those who have made outstanding contributions.

Putting the Economic Regulation Functions of Financial Receipts and Paymants Into Full Play

Appropriately readjusting the composition and direction of fiscal receipts and payments is an important measure for doing a good job in macroeconomic management.

Certain Western economists believe that tax collection is only a part of the whole taxation policy and that there is still another very important part which is the problem of building up a tax source. In 1984, the collection of individual income tax in the United States accounted for 44.44 percent of all tax collection, while in Japan it was 40.42 percent. Despite collection of the individual income tax occupying first place in tax collection as a whole, in the final analysis, the source of individual income tax comes from the enterprise. Hence, in taxation, the American and Japanese Governments have given favorable consideration to the enterprises. According to statistics, the proportion occupied by corporate income tax in the aggregate tax collection is less than one-third in Japan and only 15 percent in the United States. When a government enforces a low tax policy for corporations, it seeks to enable the enterprises to speed up the renovation of their equipment and increase their investments of a productive nature, thereby stimulating economic development. Hence, in the final analysis, this reflects the demand for an increase in capital.

Recently, the United States Government has formulated a new tax revision program, according to which both individual income tax and corporate income tax will be greatly reduced. The highest rate for corporate income tax will be reduced from 46 percent to 33 percent. Thus, although the government's tax receipts will be temporarily reduced, because tax reduction will increase the individual's income and the corporation's income, this is tantamount to increasing savings and investment. Ultimately, the growth of the economy will compensate, and in fact surpass, the losses from tax reduction.

The important parts of the fiscal budgets of the American and Japanese Governments are devoted to social expenditure, which amounts to roughly 40 percent of the whole. They include expenses for public welfare work such as social welfare, social insurance, and public health and education. This is the government taking care of society and not the enterprises taking care of society. Thus, on the one hand, it enables the enterprises to concentrate on production and operations activities and, on the other hand, through cultivation of culture, technology, and the physique of the individual, it prepares the ground for development of the productive forces for the benefit of the enterprises. The American and Japanese Governments' financial expenditures for developing the economy have a major purpose in each and every period. For example, in the 1950's, Japan adopted the "slanting type" strategy, emphasizing the development of steel, coal, heavy, and petrochemical industries. Later it stressed the development of the machine-building industry and electronics industries, achieving notable results in all cases.

Based on foreign experiences, when using this economic regulation measure of fiscal receipts and expenditures, we believe that we should pay close attention to the following problems:

First, we must overcome the purely financial viewpoint. Finance and economics are closely related to each other. Economic development relies on financial regulation and support. In the final analysis, an increase in financial receipts depends on development of the economy. Hence, financial departments should not be interested only in taking in money, but should think of how to expand and build financial sources. Basically, the viewpoint of developing production must be cultivated. At present the profit retention level of our enterprises is low, their equipment is antiquated, their skills are backward, and they lack the necessary financial power to achieve self-transformation and to expand reproduction. The reasons for all this may be traced to the practices in the preceding years of our intake of money from the enterprises being too great and the support given to them being too low.

Second, the taxation system must be perfected. At present our country has enforced the system of collecting taxes in lieu of profits and construction of the tax system has made some progress. But viewed as a whole, the taxation system is still imperfect. Some taxes which should be collected are not being collected while certain taxes that should not be collected are being collected. An example is the collection of individual income tax. Although collection of the tax is stipulated in the regulations, the regulations are not being strictly enforced. Many of the individual merchants and the so-called "10,000 yuan income households" who should pay taxes are not being taxed. Another example is the regulation tax. In name it is meant to offset the enterprises' differential receipts due to irrational prices. In reality, it is like "whipping the fast ox." This kind of regulation tax should be speedily abolished.

We should rationally arrange for our financial payments. At present the financial receipts of our country are still not great. Between the demand for funds and the availability, a rather large problem still exists. Hence, special attention should be paid to handling well the relationship between production and construction and improving the people's standard of living. When we look at the past, we may find that certain of the so-called major construction projects did not seem to have been so utterly necessary and correct. Hence, from now on, large fiscal payments must be first subjected to cautious deliberations.

Putting the Key Role of Banks in Economic Activities Into Full Play

Lenin once said: "Large banks are state organs which are urgently needed in our realization of socialism" "devoid of large banks, socialism cannot be realized" ("Selected Works of Lenin," Vol 3, pp 307-308)

For a long time, we have not paid sufficient and important attention to the role of banks. The main existing problems are:

1. The banking business is not developed. This is principally manifested in the following: Banks do not have a high status in economic management, the banking network is not wide enough, the banks do only a unilateral type of business, emphasizing only cash control and not management of credits and loans or issuance of banknotes. They neglect the open up domestic money markets or develop business and dealings in negotiable securities.

2. There is lack of a scientific basis for the issuance of banknotes and the floating of loans. Both in 1983 and 1984, the issuance volume of banknotes greatly exceeded the extent of the growth of the social total output value and a great portion of it was irrational. The blind and unguided nature of loans was also extremely serious. In 1984, the total amount of the various kinds of bank loans granted increased by 28.9 percent over 1983. In December alone, the amount of increase in bank loans was 48.4 percent of the amount of increase for the whole year. Such an irrational phenomenon has greatly impeded the development of the national economy.

3. The banks have suffered overly great interference from all sides and generally lack an independent nature. At present, the banks in our country

have not yet played the role of financial center or accounting center or supervisory center, basically having the nature of being a "big cashier." Moreover, the banks are helpless before various improper practices such as recklessly overdrawing from the banks and so forth. Originally, the several tens of billion yuan of funds expended on the purchases of grain and cotton should have been paid by the finance department, but now they are first advanced by the banks, thus using up a large portion of the bank funds.

We believe that for the sake of accelerating the development of our country's planned commodity economy, it is necessary to elevate the status of the banks and put the role of banks in macroeconomic management into full play. Only through the banks grasping the aggregate volume and direction of the flow of social funds, only through the banks grasping the conditions in respect of the production, distribution, and circulation of whole society's commodities, and only through the banks exercizing control over the issuance of banknotes and regulation of the interest rates so as to guide the direction and speed of the economic development is it possible, from now on, for our national economy to develop in a sustained, stable, and coordinated manner and is it possible to raise our management and control of the macroeconomic to a new level.

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[Article by Liu Delin [0491 1795 2651]: "Step up the Management of Capital Raised in the Society"--edited by Pan Schucheng [3382 6615 3397].

[Text] I. Strengthening the Management of Capital Raised in Society Is Urgently Needed

Raising capital in society is an economic activity which, by means of the issuance of stocks and bonds, collects small sums of money in the hands of urban and rural residents and the scattered and idle funds of enterprise units and absorbs foreign funds, thus forming a large force of capital funds for use in production and construction. It is another channel for raising and distributing funds resorted to by financial departments and banks in addition to their customary channels. The practice has increased in recent years following the development of the commodity economy in our country and has indeed developed rapidly. In 1984 alone, capital funds raised in society in the whole country amounted to five billion yuan. It may be anticipated that following the deepening of the reform of the economic structure in our country, this type of activity of raising capital for construction will have a greater impetus for development and will continue to exist for a prolonged period. The raising of capital in society in our country is an economic activity carried out under socialist production relations. Under such conditions, it is all the more necessary to subject it to planning, organization, direction, regulation, and supervision so that is may develop in a direction beneficial to socialist production and construction.

Due to the very fragile state of our management of the raising of capital in society, at present this type of economic activity is basically in a state of free and self development. Manifestations of this are as follows:

1. There is an unhealthy state of the management structure, insufficient personnel, low standard of the workers, and their inability to meet the demands of the work. Due to the raising of capital in society being initiated only in recent years, we lack a structure to take charge of its management. In the past, our departments handling finance, industrial and commercial administration and control, commodity prices, and the judiciary did not do this kind of work. These departments are all ignorant of what functions to perform relative to the raising of funds in society. It is true that the

perform relative to the raising of funds in society. It is true that the People's Bank, as a state organ in charge of the management of financial enterprises, should take charge of the management of these credit activities of raising capital in society. However, due to the People's Bank having only recently been endowed with the special functions of the Central Bank, it is still engaged in mapping out the geographical distribution of its branches so as to suitably meet the demands of developing the economy. As a matter of fact, the great majority of counties and cities in the country still do not have a branch office of the People's Bank. Even in the existing organs at various levels of the People's Bank, the departments in charge of the functions of managing the raising of capital in society are rather weak and imperfect. Some lack people to take charge, while some have entrusted their work to other departments. Because we have long taken the system of shares and bonds as belonging to the realm of capitalism and have not resorted to the practice of raising capital in society for construction purposes, we have not undertaken much study in the economic and financial fields on the theoretical and management phases of the raising of capital funds in a society under socialism. The great majority of the existing management personnel have no basic knowledge of the raising of funds in society nor any experience in the management of this type of economic activity. The relevant departments have also paid no attention to how to train management personnel in this connection and how to improve their management level.

2. There is imperfect legislation work, resulting in no legal basis upon which to call. Although in recent years our country's economic legislation work has progressed rather rapidly and a definite foundation has thus been laid for us to employ legal measures in the management of raising capital in society, statutes directly related to this type of work such as the "law governing the raising of capital" and the "bankruptcy law" have not yet been enacted. At the same time, a set of unified management regulations and rules and a concrete system have not yet been formulated.

The People's Bank of China is a state organ to lead and control the financial and currency enterprises of the whole country, but so far the authority of the bank's branches to exercise management and control over the raising of capital in society has not yet been established. To do a good job in the management of raising capital in society depends on the forces and support of specialized banks which liaise closely with the enterprises, but at present the branch organs of the People's Bank have no power to arrange for this phase of work in the specialized banks, and in the whole country, a centralized and unified force for the managment of raising capital in society has not yet been formed. Enterprises raising capital generally start from their own ranks and in their own localities in handling the problem of raising funds for construction, and frequently conflict with the direction of the macroeconomy. In handling the contradictions in this connection, the branch organs of the People's Bank still do not have the administrative and economic power to deal with such problems as the random raising of funds, disorderly assessment of fund contributions, chaotic distribution of profits, and so forth.

Due to the management of the raising of capital in society currently still being in a loose and weak state, a number of problems urgently demanding solution have arisen in the activities of raising funds in our country. The major ones are:

1. The porms of raising funds are incomplete and the convertibility of shares and bonds into cash is not strong enough. Those (individuals and units) who organize the raising of funds in society usuallly do not have clear-cut and concrete rules formulated beforehand. The powers and the economic responsibilities of the sharholders are not stipulated. In some cases, only verbal agreements prevail and the necessary formal procedure is lacking. The share certificates issued do not show whether they are stocks or bonds or the kind of securities purported. Attractive terms, such as keeping the share capital intact, regular payment of interest and dividends, permission to withdraw midway from participation, and so forth, are offered to absorb the capital funds. Regarding the issuance of share certificates, some of the companies do not actaully print and issue the share certificates; rather, they merely register the names of the shareholders, issue receipts to them, and on this basis pay them the share interest or dividends when due. Certain regions have gone so far as to resort to non-compensatory or irrecoverable capital-raising or compulsory levies and assessments, arbitrarily asking subordinate enterprises to subscribe to the shares, or ordering their staff members to buy the shares or bonds. In addition, our country has no stock market facilities and the banks do not discount shares or accept them as securities for loans. As a result, the convertibility of the securities into cash is extremely low or is non-existent. All this not only brings confusion to the raising of funds in society, but also restricts the scope of the issuance of share certificates and bonds and hinders the raising of capital funds. This is definitely harmful to those enterprises which have bright prospects and are under capable management and to the relevant departments in rapidly raising large amounts of capital funds.

2. There is a problem of blindly raising funds and poor results in the use of funds. Some units or people raising capital funds lack careful planning for the business operations beforehand, do not study the feasibility of the direction of investments to be made, or possess a low operations and management level, or are far behind in technological strength. As a result, the capital funds raised cannot be put into profitable operation at once. In some cases, interest payments have to be made even though the enterprise has not yet started business. In other cases, the capital raised is only sufficient to pay for part of the factory buildings or equipment, making the project "half-finished," or, even though the factory building and equipment have been completed, circulating funds are lacking. In yet other cases, the enterprise is forced to produce goods that are not readily saleable or are sub-standard in quality or are high-priced. All this not only prevents the capital funds from playing their role, but also prolongs the capital construction front and wastes money.

3. There is the problem of paying excessively high interest benefits and making irrational distributions of earnings. In some cases, the whole of interest payments on the capital funds raised is charged to the cost of production, while distribution of dividends is made prior to payment of the taxes; in other cases, the profits of other enterprises are arbitrarily taken over, thus enlarging the gap of irrational distribution among the enterprises.

In some extreme cases, no reserve is set aside for accumulation, dividing all the assets and ultimately closing shop, thus damaging the state's and the collectives' interests. There are also instances in which no limit is placed on the investors individually buying shares, bringing about a wide disparity in earnings between the shareholders and in some cases resulting in the shareholders encroaching upon the labor benefits of the staff members and workers.

II The Necessity of Management Over Raising Capital in Society

1. Raising capital in society possesses a dual character. If we can step up the management over it, removing the defects but retaining the good points, it can render good services to socialist production and construction. The system of shares and bonds is a product of the development of a commodity economy and has been developed in a capital society. On the other hand, it plays an active role in raising capital funds for production and construction and in facilitating the growth of the productive forces. On the other hand, it is imbued with a speculative character, has the nature of blindness in action, is more or less parasitic, and possesses a passive quality which contributes to economic instability.

Although the stock and share system owes its development to a capitalist society, it is not exclusively confined to capitalism. It is the product of a commodity economy. Under the condition of the economy of our country being a commodity economy, we can also make use of this economic activity of raising capital in society to facilitate the development of production and construction in our country. However, we must fully comprehend the dual aspects of this measure, and retain the advantages and discard the disadvantages. Only by so doing can we achieve our purposes. Management and control of the raising of capital funds in society constitute an important measure to eradicate the passive elements and stop law-breaking and undisciplinary acts.

2. Insistence on the principle of the socialist public ownership system of the means of production demands that there must be management and control of the raising of capital in society. Whether the means of production are under the public ownership system or under the private ownership system is the basic point marking the distinction between socialism and capitalism. Enterprises formed by the raising of capital funds through share contributions constitute a new form of economic combination between enterprises owned by the banks and the individual, between the collective and the individual, and between the three parties of the whole people, the collective, and the individual, as well as various other forms of combination. Although such enterprises are intrinsically different from the factory combinations under the capitalist system, in the enterprises formed from the raising of capital in society through share contributions there is the possibility of a portion of the shares falling into the hands of individuals or groups of private persons and hence the possibility of enteprises under the public ownership system coming under the control of individuals or groups of private persons. Therefore, when issuing share certificates in raising capital funds, measures must be taken to prevent this possibility becoming a reality and thus ensure and

protect the nature of the public ownership system of the means of production in enterprises formed from the raising of capital funds in society.

3. A planned commodity economy demands the management and control of the raising of capital funds in society. Be it under macroeconomy or microeconomy, it is necessary that a balanced relationship in quantity be maintained in the objects and items related to each other. At present, the raising of capital funds in society is a spontaneous economic activity. A sizable portion of the capital funds raised comes from consumption funds, that is, the process involves the conversion of consumption funds into production funds. By so doing, it is true that to some extent it plays an active role in promoting production and construction. Nevertheless, if the raising of capital funds in society is extended and if there is an excessive conversion of the consumption funds into production funds, so much so as to exceed quantitative elasticity, it naturally will disrupt the state's proportionate arrangements between accumulation and consumption and break the equilibrium between the supply and demand of the means of production, the supply and demand of the means of consumption, and their internal composition. It will aggravate the actue situation in transport and the shortage in the supply of energy and raw materials, enlarge the scale of capital construction, and send the already large scale of investments in fixed assets out of control. In addition, being relatively independent commodity producers, enterprises formed from the raising of capital funds will naturally and constantly readjust the direction of their production in accordance with the market conditions. In the current state of a still irrational price structure and the existence of a great disparity in the profit-making rates of the enterprises, the flow of the investment funds on the part of the enterprises may not be entirely rational and the evil consequences of redundant construction and blind construction may arise. Hence, taking steps to carry out planned management and guidance of the raising of capital in society is extremely necessary.

4. In order to concurrently watch the interests of the three parties concerned--the state, the collective, and the individual--in the distribution of the profits of enterprises formed from the raising of capital in society, it is also necessary to carry out management and control over the raising of capital in society. Under socialist conditions, the investors must be given a definite compensation in the form of interest and/or dividends so as to arouse their enthusiasm. But interest and dividends are special distribution forms of the earnings of individual workers obtained from borrowing and using the ownership rights of the capital funds. Distribution of these receipts among people is imbalanced, and if the disparity in distribution is too large, some people may have the opportunity of unlimited expansion of their ownership of banknotes and a special group of people who live on interest earnings may arise. Moreover, a portion of the profits of enterprises formed from the raising of capital funds frequently comes from an irrational distribtion of resources or an irrational price system. This is literally a transfer of the earnings of other enterprises. Hence, this portion of profits should not be wholly distributed to private persons. At the same time, the state and the enterprises must ensure and protect socialist expanded reproduction and ceaselessly strive to increase capital for production. Thus, in the distribution of profits, we must concurrently take care of the interests of all three parties concerned--the state, the collective and the individual.

This demands that we make suitable restrictions on the distribution of benefits to the investors.

III. Methods of Management over the Raising of Capital in Society

1. Formation of a healthy management structure. We must clearly specify the status and power of the People's Banks at various levels in the management of capital in society. On the part of the People's Bank, it must actively create the conditions for rapidly changing the existing passive state of their structure, which is not exactly suited to the demands of economic development. In accordance with the needs of work, in economically developed counties, branch offices of the People's Bank should be established. In the internal structure of the People's Bank at various levels, departments taking charge of the management and control of financial and currency matters should be speedily established. From the provincial branches to county sub-offices of the banks, separate departments, sections, and offices should be speedily set up to take charge of the management of financial and currency matters. It should be made definitely clear that one of the major functions of these new organs is the management of the raising of capital in society and that their tasks should be the following: 1) Formulating, organizing and carrying out the management methods of raising capital in society; 2) Screening and approving the issuance of share certificates and bonds; 3) Supervising the direction of the business operations of enterprises formed from the raising of capital in society and their distribution of interest and dividends; 4) Helping the enterprises formed from the raising of capital in society in improving their operations and management and strengthening their business accounting work; and 5) Entrusting specialized banks and other financial organs to handle matters relevant to the raising of capital in society. The various specialized banks and finance, taxation, auditing, commodity prices, judiciary, and industrial and commercial administrative and control departments should likewise augment their structure and their personnel composition. Under the leadership of the people's government at various levels, they should cooperate with each other and jointly do a good job in the management of the activities of raising capital in society. At the same time, training of the management personnel should be strengthened and their political and business level should be heightened.

2. Perfecting the management statues. The state should speedily enact relevant statues. For example, the "enterprise law" should give legal recognition to the status of the enterprises and protect the issuance and circulation of share certificates and bonds, and should legally sever the relationship between share-holding power and operations and management power, thus preventing private individuals and groups of private individuals from encroaching upon the operations and management power of socialist publicly-owned enterprises. Another example is the "Bankruptcy Law." It should stipulate that when an enterprise is declared bankrupt, it should follow legal procedures and carry out liquidation of its assets, thus protecting the legitimate interests of the investors. It should also legally provide that when an enterprise is declared bankrupt, its shareholders should be responsible for the enterprise's debts in a manner proportionate to their respective shareholdings. Prior to the enactment of these laws, we should earnestly implement the enforcement of the "provisional regulations governing

the management and control of share Certificates and Bonds of Enterprises" which will soon be promulgated. The relevant departments should also formulate certain supplementary measures and details to coordinate with the enforcement of the provisional regulations.

3. Handling the problem of issuance of certificates well in raising capital in society. In issuing share certificates and bonds in the raising of capital, enterprises should apply first to the People's Bank or its branches. On the part of the People's Bank and its branches, they should do a good job in examining applications for the raising of capital. The applications should comply with the following specifications: The applicant enterprise must possess the qualifications of a legal entity sanctioned by industrial and commercial administrative and management departments, and sponsers of a new enterprise should themselves subscribe a fixed amount of the capital; the application must clearly state the various particulars such as the investment project, amount of funds to be raised, the scope and subscription area of the certificates, estimated benefits, method of profit distribution, and so forth. In order to facilitate the control of the issuance and circulation of the share certificates and bonds, it is recommended that an investment bank be established by the state. After an enterprise has obtained the approval of the People's Bank to issue share certificates and bonds, it can entrust the investment bank to take charge. Prior to the establishment of the investment bank, specialized banks or other financial organs may act in its stead.

4. Stepping Up Planned Guidance. First of all, we should set up a scientific statistical system for raising capital in society. The enterprise raising funds should step up its basic statistical work and truthfully, accurately, and promptly report all statistical data. It should quarterly and yearly submit to the People's Bank (or through the specialized bank or other financial organs) its plan on raising capital funds. The contents of the plan should include the amount of capital to be raised and the direction of the investment to be made. Branch organs of the People's Bank, based on the fundraising plans of the enterprises and the demands for the development of the national economy, should annually compile the plans for raising capital in society in their respective administrative areas, incorporate them into their overall credit and loan plan, and submit them to the higher levels step by step for approval. Following on overall balance made by the head office of People's Bank and the approval of the State Council, the relevant plans will be forwarded to the various localities for enforcement. In arranging the proportionate relationships between the various material production departments, between accumulation and consumption, and between manpower, material power, financial power, and technological strength, the State should take into due consideration the new element of the possible changes in the operational compostion of funds and materials on account of the effects of the raising of funds in society such as converting consumption funds into production funds, and should do a good job in effecting an overall balance.

5. Stepping Up Control Of The Funds Raised In Society. First, in the management and control of the funds from raising capital, it is necessary to control the sources of funds of the investors. The following three points should be noted: 1) We should suitably control the subscription amount of private individuals and groups of private individuals. In Romania,

regulations provide that the gross amount subscribed by the workers to the economic development fund of an enterprise should not exceed 30 percent of the fixed assets of the unit concerned, that the amount of shares owned by an individual worker during the whole working period should not exceed a maximum amount of 50,000 leu (equivalent to 11,000 yuan) or a minimum of 10,000 leu. This is well worth our study. It is recommended that regarding these problems, the state should make a ruling in principle so that the branches of the People's Bank, based on the conditions of the varous localities, may follow. 2) The funds employed by enterprises in making the share subscriptions should be only the various kinds of special sinking funds and accumulation funds that have remained idle for a time and should not be the circulation funds or funds from bank loans, thus preventing the expansion of the scale of credits and loans. Investments made by enterprise units should comprise only extrabudgetary funds while intrabudgetary funds should not be used. State organs, public bodies, and the armed forces are not allowed to invest in shares and bonds. 3) Absorption of foreign capital investments should conform with the relevant regulations of foreign economic relations and the relevant regulations of foreign exchange control.

Second, it is necessary to control the flow and direction of the investment of capital funds. The following major points should be noted: Whether or no the investment project conforms with the principle of requiring little investment but producing quick results, whether or not there is a complete set of equipment availalbe, whether or not the raw materials required can be procured, whether or not the necessary technological strength is avialable, and whether or not the products are suited to market needs. The banks may also exercise control of the shares through the purchase of shares, thus taking part in the internal opertions and decisionmaking of the enterprises. Raising of funds related to the nature of investment in fixed assets should have a fixed asset investment plan, so as to prevent a random submission of projects and expansion of the scale of fixed asset investments.

6. Permitting the Circulation of Share Certificates and Bonds and Strengthening the Management Thereof. Holders of securities generally hope that their investment funds will not be frozen for long. They hope that, when necessary, their holdings can be converted into cash. Moreover, because receipts or earnings from securities are of an anticipated nature and also an uncertain nature, the investors naturally hope that their securities can be bought or sold. But the open buying and selling of securities may encourage speculation. For this reason, on the one hand it is necessary to maintain the convertibility of share certificates and bonds, and on the other hand, we must prevent them from being the objects of speculative activities. We must adopt a cautious attitude in regard to the buying and selling of securities. It is suggested that the state set up an investment bank as the "middleman" for the buying and selling of share certificates and bonds. Transactions should be made through the bank and direct buying and selling transactions between private individuals should be prohibited. The investment bank may also purchase the securities from the holders and permit share certificates and bonds to serve as securities for loans from specialized banks and other financial organs.

7. Suitable Restrictions Should be Placed on the Interest Earnings of the Investors. Economic measures such as pricing and taxation should be used to restrict the interest earnings of the investors. For example, the dividends of individual investors should be suitably taxed. But under the current conditions of our country's price and taxation structures still not being sufficiently perfect, making suitable restrictions on the interest earnings of investors must necessarily be an expedient measure. In restricting the interest earnings of the investors, we should take due consideration of the risks borne by the investors and the state's capacity to take up the burden. According to the Marx theory on interest, interest should be treated as an expenditure in the cost of production. Unfortunately, at present, the profit-retention level of enterprises in our country is very low. If we follow entirely the procedure of paying interest to the investors from the profit retained after tax payment, then it will be difficult to find a market for share certificates. It is recommended that distribution of the earnings of the investors be made in the two forms of interest and dividends. Share certificates and bonds may receive interest payment at an agreed interest rate out of the cost of production of the enterprises. The interest rate may be slightly higher than the interest rate payable by the banks on deposites of the same category and for the same length of time. Since investors in share certificates must bear certain and definite risks, after an enterprise has set fully aside, out of its net profits, amounts to be retained for the public accumulation funds and public welfare funds, retention may still be made for dividends at a fixed ration. But the maximum amount of earnings (interest and dividends) of investors in share certificates should not exceed 15 percent of the principal of the shares a year. Since the degree of the risks borne in shareholding differs with different categories of shares, the maximum amount of dividends should also vary with different categories of share certificates.

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MINERAL RESOURCES

BRIEFS

QINGHAI GOLD PRODUCTION CONFERENCE--The provincial conference on gold production, which concluded on 30 January, pointed out that on developing gold production, we must continue to implement the principle of large mines mining the metal on large scale, taking a relaxed attitude toward small mines, and promptly letting the water in mines flow away. Also, we should ensure that the state, collectives and individuals develop the trade simultaneously. We should use economic means, administrative means, and legal means to stop up loopholes concerning the activities of smuggling gold. Over the past 2 years, the province has developed gold production. The participating comrades held: The gold deposits are an advantage for Qinghai. To grasp gold production well is of great significance in terms of promptly exoricating poor villages from a poverty-stricken state. Therefore, we must not weaken gold production. When problems develop, we should investigate their causes and solve them by giving guidelines. At the same time, the departments concerned should constantly propagate relevant state policies and regulations at the mines, so as to heighten the masses' consciousness on banning gold smuggling activities. The conference formulated this year's gold production tasks. It also commended four units, including Dulan and Huangzhong County governments, as well as 12 advanced individuals, including (Zeng Fazhong) and (Mao Lingtao), who have made remarkable achievements in 1985 gold production and purchasing. [Text] [Xining Qinghai Provincial Service in Mandarin 2330 GMT 31 Jan 86 HK]

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CSO: 4006/713

INDUSTRY

BEIJING TO HOST INTERNATIONAL SHIP REPAIR EXHIBITION

OW120815 Beijing XINHUA in English 0653 GMT 12 Feb 86

[Text] Beijing, February 12 (XINHUA)--China's first international ship repair, spare parts, maintenance and conversion exhibition is to be held in Beijing this October, the China State Shipbuilding Corporation announced today.

Organized by the corporation's comprehensive technology research institute, the Chinese Society of Naval Architecture and Marine Engineering and the Hong Kong Trade Show Consultant International Ltd., the exhibition is aimed at enabling China's marine industry to meet ship repair equipment and material suppliers worldwide.

Many foreign firms have been invited to attend the event in addition to some 3,000 engineers, technicians and managers from 500 Chinese ship repairing enterprises, CSSC said.

China's ship building industry has been doing ship repairs for nearly 150 years. At present, various repair stations have been set up along the Yangtze--China's longest river--and major coastal harbors. The corporation runs over 20 repair docks, the largest of which can hold a ship of 60,000 dwt.

The Chinese Navy has a fairly complete system of ship repair and it does a great portion of its own repairs and conversion.

High-pressure water cleaning, airless paint spraying for hull painting and electro-driven scaffolds are in wide use in China. Low-temperature iron plating, chemical cleaning and other new techniques are used at each shipyear.

CSSC has established business relations with more than 100 companies, manufacturers and government institutions of over 20 countries and regions. Efforts have been made to shorten the repair period for foreign vessels which averaged 10 days in 1984.

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CSO: 4020/219

INDUSTRY

MACHINE-BUILDING ADVANCES IN SIXTH 5-YEAR PLAN PERIOD

HK070348 Beijing CHINA DAILY in English 7 Feb 86 p 2

[Text] During the Sixth Five-Year Plan (1981-1985), China's machine-building industry made great strides in developing new products, the newspaper ECONOMIC INFORMATION reports.

The industry produced 129 categories and more than 50,000 varieties of produects over the past five years, the paper said. At least 26 per cent of them are considered up to international standards of the last 1970's and early 1980's.

In its effort to develop new products, the Ministry of Machine-building Industry offers incentives to its businesses.

The ministry stipulates that one per cent of total earnings from sales should be used for a fund to develop new products. Expenses for developing new products can be figured into the cost of production, and new products are tax-exempt.

The ministry placed special emphasis on the development of energy-conserving products, elementary components, basic equipment and important new products.

Over the past five years, the machine-building industry manufactured 920 varieties of energy-saving products, popularized another 303 varieties, and put 140 varieties of high-energy-consumption products out of service.

The industry also turned out over 1,000 varieties of elementary components involving hydraulic, sealing, low voltage and bearing products.

In another field, the industry produced on a trial basis 26 varieties of digital controlled machine tools, 28 varieties of high-precision machine tools and seven varieties of heavy-duty machine tools.

The industry brought more than a dozen types of heavy equipment up to advanced world level of the late '70's.

By the end of last year, the Dalian Heavy-duty Machinery Plant manufactured 10 sets of casting equipment with a capacity of 200,000 tons. The plant has also started to produce open pit mining equipment with a capacity of one million tons.

The generator units, with a capacity of 170,000 kilowatts, were developed and produced by the Guangdong Electrical Machinery Plant, the Harbin Electrical Machinery Plant and the Harbin Electrical Machinery Research Institute. They have gone into operation at the Gezhou Dam.

The Ministry of Machine-building Industry produces nine categories and 137 varieties of electric welding machines. Many of them are energy-saving products.

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CSO: 4020/219

INDUSTRY

BRIEFS

EQUIPMENT FOR SHAVING BOARD PRODUCTION--Shenyang, February 9 (XINHUA)--China has succeeded in making a complete set of equipment for producing large wood shaving boards, according to experts here. The equipment, a major research subject in the Sixth Five-Year Period (1981-1985), was made by Shenyang heavy machinery plant. One cubic meter of shaving board can substitute for three cubic meters of good timber. The equipment was made with the help of advanced technology introduced from abroad, the experts added. [Text] [Beijing XINHUA in English 0738 GMT 9 Feb 86 OW] /6662

INDUSTRIAL OUTPUT INCREASES IN JAN--Beijing, February 9 (XINHUA)--China's industrial output last month was worth 68.19 billion yuan, an increase of 5.6 percent over the same month last year, the State Statistical Bureau reported today. Light industrial output value amounted to 35.27 billion yuan--5.2 percent more than in January, 1985. To meet market demand during the spring festival, the traditional Chinese New Year, the country produced more than 330,000 color TV sets last month (46.5 percent more than in the same month last year), 1.07 million [one million and seventy thousand] cassette recorders (up 33.7 percent), 136,000 refrigerators (up 120 percent), 760,000 washing machines (up 28 percent) and 150 million liters of beer (up 25 percent). [Text] [Beijing XINHUA in English 1035 GMT 9 Feb 86 OW] /6662

CEMENT OUTPUT FORECAST--Beijing, February 7 (XINHUA)--China plans to double cement output over the next five years, the ECONOMIC INFORMATION newspaper reported today. Production should reach between 180 million and 220 million tons by 1990, twice the 1980 figure, the paper forecast, and could reach 300 million tons by the end of the century. Production of plate glass, and non-metallic and other new types of building materials will also be stepped up, the paper said. Hygienic ceramic products will be standardized. Their variety will be increased and quality improved. In 1985, China produced eight million pieces of hygienic ceramic ware, including glazed ground and wall tiles. [Text] [Tokyo KYODO in English 1509 GMT 7 Feb 86 OW] /6662

CSO: 4020/219

CONSTRUCTION

QINGHAI'S QAIDAM BASIN PROJECT GOING FASTER

OW111016 Beijing XINHUA in English 0649 GMT 11 Feb 86

[Text] Xining, February 11 (XINHUA)--Development of Qinghai's Qaidam Basin as a salt, chemical, non-ferrous metal, petroleum and building materials industrial base is moving faster.

The basin, which covers an area of 250,000 square kilometers, has more than 40 kinds of minerals. Verified reserves of potassium salt, lake salt, magnesium salt, lithium, bromine and asbestors rank first in the country. Other minerals include petroleum, coal, lead, zinc, gold and silver.

Prospecting in the western part of the basin in the past four years has verified a big petroleum pool. Construction of an oilfield with an annual output of 10.5 million bbl of crude oil and a refinery handling one million tons of oil is underway.

At the Qinghai tin and iron mine on the northern fringe of the basin, the builders had almost finished the shafts, a power plant and an ore-dressing plant at the end of 1985. Work on the mine is expected to be completed half a year ahead of schedule.

As the production line with an annual output of 40,000 tons of potassium fertilizer just went into operation, the basin is now preparing to build China's largest potassium fertilizer plant, producing one million tons of potassium chloride annually.

The completion of a railway and the reconstruction of the Qinghai-Tibet highway, both of which pass through the basin, has contributed to the faster growth.

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CSO: 4020/219

DOMESTIC TRADE

ANHUI BOOSTS ECONOMIC TIES WITH OTHER PROVINCES

OW030720 Beijing XINHUA in English 0635 GMT 3 Feb 86

[Text] Hefei, February 3 (XINHUA) -- Anhui Province is transferring advanced technology introduced from coastal areas to other interior provinces.

According to the provincial authorities, Anhui signed economic and technical contracts for 1,685 projects with other provinces last year, four times the 1984 figure. These cooperative items involved a record total of 680 million yuan.

Economists analyzed that economically less-developed medium-sized and small cities can digest the techniques from a neighboring province better than directly from coastal provinces and cities.

Linked with economically developed Jiangsu and Zhejiang Provinces, and China's major industrial city of Shanghai in the east, Anhui borders Henan, Shandong and Hubei provinces in the north and the west.

The province has improved the quality of its textiles, chemicals and light industrial products by absorbing advanced technology from Jiangsu and Zhejiang provinces and Shanghai over the past couple of years.

Anhui negotiated cooperation agreements with noted factories in Shanghai in 1984 when its wrist watches, sewing machines and bicycles were overstocked with charts, technology and standards provided by these factories and technicians, the province is able to turn out quality products which sell well.

Through cooperation with Shanghai's no five shirt factory, the Fuyang people's garment factory is able to export its products to European and Latin American countries and Hong Kong.

The factory set up cooperatives with county-run and rural businesses in East Henan and southwest Shandong province last year.

The Anqing general bakery and confectionery in Anhui province, known for high-quality cakes, has taught a number of factories and shops in Henan, Gansu and Shaanxi provinces how to make pastries.

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CSO: 4020/217

DOMESTIC TRADE

STEPS TAKEN TO BOOST DOMESTIC MARKETS

HK081129 Beijing CHINA DAILY in English 8 Feb 86 p 1

[Article by Staff Reporter Liu Dizhong]

[Text] New and more flexible measures will be taken to invigorate China's domestic market, which is under great pressure due to the sharp growth in purchasing power.

New commercial enterprises and companies which will directly link buyers and sellers are to be set up this year on a trial basis.

For example, commercial departments in Beijing could set up firms with growers in Hebei Province to ensure fresh vegetables go directly to the capital's markets; or Guangdong Province could improve its pork supply by organizing companies with farmers in Sichuan and Hunan provinces, which have a surplus.

The move is part of the nation's efforts to cut out the "middle men" in commercial business, Jiang Xi, deputy minister of commerce, said yesterday in an interview with CHINA DAILY.

The measures will not only reduce the waste of manpower and materials but also greatly benefit farmers, Jiang said.

Other new measures include opening state-owned warehouses, cold stores, freight yards and motor pools to individuals and collectives to help develop their businesses.

Jiang said the nation's soaring buying power was putting great pressure on the home market and complaints were often heard about insufficient supplies of high-quality commercial goods.

The deputy minister estimated that total retail sales would grow to more than 470 billion yuan this year, an increase of 10 percent over 1985.

Jiang said there was no problem providing the daily necessities like grain, edible oil, pork, cotton and cloth, but supplies of wool and wool products, high quality colour TV sets, freezers, bikes and washing machines as well as milk products, mutton and sea food were still insufficient to meet the increasing demand.

In the countryside, the most urgently-needed goods were building materials like steel, cement and glass, Jiang said.

Economic prosperity has led to a substantial rise in house-building in rural areas.

Last year, total retail sales reached 430.5 billion yuan, an increase of 27.5 percent or 92.9 billion yuan more than the previous year. Jiang said nearly half of all retail sales were food products, 201 billion yuan worth, an increase of more than 30 percent over 1984.

Sales of wool products increased 11.3 percent, silk by 8.8 percent, blankets 22.7 percent and ready-made clothes more than 28 percent.

Household electric appliances also sold more both in urban and rural areas. Last year saw a rise of 550 percent in the sale of freezers, while sales of colour TV sets went up by 220 percent and those of tape recorders and electric fans more than doubled.

Jiang said state-run shops had reduced their role in market-oriented business due to the prosperity of individual and collectively-owned enterprises scattered throughout the country. The proportion of pork sales by state-run shops dropped from 76.6 percent to 47 percent, eggs from 40 percent to 23 percent and vegetables from 51 percent to 26 percent.

Jiang said China's home markets would be even busier this year with the development of individual and collective enterprises, and the Ministry of Commerce would strive to ensure a better balance between supply and demand.

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CSO: 4020/218

DOMESTIC TRADE

BRIEFS

HEILONGJIANG ECONOMIC RELATIONS PROMOTION--Harbin, 21 Jan (XINHUA)--Heilongjiang Province has signed 1,171 economic cooperation agreements with 28 other provinces, municipalities, and autonomous regions, and obtained investment amounting to some 720 million yuan from them. The province has established economic and trade relations with some 1,700 firms in 104 foreign countries and regions. In 1985, commodities worth some 3.8 billion yuan were purchased for export by the province's export trade department. [Summary] [Beijing XINHUA Domestic Service in Chinese 0127 GMT 21 Jan 86 OW] /12640

GUANGDONG ESTABLISHES COOPERATION ZONE--In order to speed up economic development in remote mountain areas, Guangdong's Meixian, Jiangxi's Ganzhou, and Fujian's Longyan Prefectures, which are situtated at the juncture of Fujian, Guangdong, and Jiangxi Provinces have recently agreed to establish a Longyan-Ganzhou-Meixian Economic Cooperation Zone and lateral economic ties among themselves. Not long ago, Meixian Prefecture sent an economic and technological investigation group to Ganzhou and Longyan to probe opportunities for economic and technological cooperation. During the investigation, the group and Longyan Prefecture initialled contracts for supplying each other with rolled steel, plywood, artificial marble, medicines, computerized telephone sets, garments, and magnetic materials. They also initialled letters of intent on such economic and technological cooperation items as exchanging technology and developing rail, highway, and water transport. [Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 30 Jan 86] /12640

CHONGQING TRADING CENTERS ESTABLISHED--Chongqing, February 4 (XINHUA)--Chongqing--The first city in China to experiment with economic reform--has established hundreds of trading centers since 1984 for science and technology, information, finance, capital and consumer goods, labor services, farm produce and building materials. A local official said here today that about 120 consumer goods trading centers have encouraged individual buyers and sellers, reversing previous practices that allowed goods to be distributed only according to work units and other government divisions. Chongqing, largest economic center in southwest China, has since 1984 opened 190 science, technology and information centers and 148 consulting services run by enterprises. Last year, the city in China's most populous provinces of Sichuan hosted 35 technical fairs, which led to production agreements involving 1,000 items. Six capital goods centers were established last year for trade in rolled steel, timber, coal and motor vehicles. Together, their transactions have totaled 360 million yuan (113 million U.S. dollars). [Text] [Beijing XINHUA in English 1315 GMT 4 Feb 86 OW] /6662

CSO: 4020/218

FOREIGN TRADE AND INVESTMENT

ZHENG TUOBIN ADDRESSES CHEMICAL IMPORT-EXPORT COMPANY MANAGERS

HK281100 Beijing Guoji Shangbao in Chinese 13 Jan 86 p 1

[Report by special reporter Shi Hua [4258 5478]: "Zheng Tuobin Emphasizes Arousing People's Initiative by Economic Means"]

[Text] In a speech to a meeting attended by branch managers of the China Chemical Import and Export Corporation on 11 January 1986, Zheng Tuobin, minister of foreign economic relations and trade, said that this year is the first year of the Seventh 5-Year Plan and is the key year for us to fulfill the planned targets for export.

He pointed out: At present, our country's economy has entered the most vigorous and dynamic period, and this has provided favorable conditions for the fulfillment of this year's export plans. Foreign trade departments should focus their work on raising their business results and increasing exports and foreign exchange earnings.

He said: We must try by every possible means to ensure the supply of goods for export so as to fulfill the export targets. Economic means should be adopted to support production and to arouse the production initiative of the enterprises and workers. Our experience in past years has shown that if we do not adopt economic means, we will not be able to ensure the steady supply of goods for export on a long-term basis. We should take measures to enable the enterprises producing export goods to gain more profits by exporting their products than by selling them on the domestic market. Under the premise that the state takes a bigger proportion of the earnings and that the export and foreign exchange earnings are increased steadily, measures should be taken to ensure that the enterprises and workers can enjoy economic benefits from the increase in the export of their products. Fixed business relations between the manufacturers and the foreign trade companies should be maintained by economic means. Foreign trade companies can continue their experiments in running their own plants to produce the goods they need. Special funds for developing export-oriented production and for awarding contributions to the export business should be established. This will promote the development of new products and will ensure the supply of export goods. It is necessary to form closer ties between industrial enterprises and foreign trade enterprises, and the latter should provide good services for the former. In the reform of the foreign trade structure, efforts should be made to consolidate and improve the new establishments. Measures should be taken to ensure better coordination and to strengthen management. The principle of adopting a unified approach in external dealings must be maintained so as to ensure the steady advance of the reform of the foreign trade system. At the same time, positive measures should be taken to raise the economic efficiency of our foreign trade business. We should not merely rely on some passive means of lowering operating costs, but should also adopt positive measures to improve management and raise work efficiency.

Finally, Minister Zheng Tuobin pointed out that in order to ensure the fulfillment of this year's targets, we must also make great efforts to set aright our party style and to promote the development of spiritual civilization. Leading cadres in all units and at all levels should set a good example in rectifying party style. Organs of the ministry and all general corporations should particularly make major contributions to this so as to bring along their subordinate units and to strive for a fundamental turn for the better in party style in the foreign trade system.

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CSO: 4006/706

FOREIGN TRADE AND INVESTMENT

TA KUNG PAO ON PROBLEMS FACING PRC FOREIGN TRADE

HK240646 Hong Kong TA KUNG PAO in Chinese 23 Jan 86 p 2

["Political Talk" by Shih Chun-yu: "Two Thorny Problems Facing China's Foreign Trade"]

[Text] Deficit Amounts to U.S. $7.6 Billion

China's Ministry of Foreign Economic Relations and Trade has disclosed that last year, China's total import and export volume was more than U.S. $59.2 billion, a 19-percent increase over that in 1984, but the trade deficit also increased tremendously amounting to U.S. $7.6 billion

Such a big increase in the trade deficit had been expected because of the "overheated" economic development in 1984 and early 1985, and because some areas and units had vied with one another in blindly and repeatedly importing a large quantity of consumer goods from foreign countries by making use of the powers delegated to them, thus spending a great deal of foreign exchange. When Beijing discovered this problem, it immediately adopted strict austerity measures to slow down the overheated industrial development, reduce unnecessary imports, and strengthen control on foreign exchange. As a result, until the end of the 3d quarter of last year, China's foreign exchange reserves totaled more than US. $12.59 billion, an increase of U.S. $1.7 billion over that at the end of June. So, the declining was stopped and the rise began.

Protectionism Destroys World Trade

That China today faces such a huge trade deficit of U.S. $7.6 billion is really a serious problem. China needs to take effective measures to tackle this problem, otherwise there will be another drain on her limited foreign exchange reserves.

Last year a worldwide economic depression was experienced. It was mainly because the Reagan administration stayed with its policy of high interest rates and high exchange rates for the dollar. The U.S. economy also suffered from this policy. The U.S. trade deficit was very big. Protectionism gained momentum in the United States and U.S. imports of foreign products were restricted. Although in recent years, China's export trade has developed very fast, it has also been increasingly harmed by international protectionism. This is the problem faced by China and many Third World countries. It can only be solved through international negotiations and coordination.

Oil Exports Should Be Limited

On the international oil market, supply has exceeded demand, so the oil price is dropping drastically. The price of Britain's North Sea crude oil has dropped to below U.S. $20 per barrel. It is predicted that the world oil price will drop to U.S. $18 to U.S. $15 per barrel in the future. This is a heavy blow to China's oil exports. In the future, China should not completely rely on its oil exports because, on the one hand, China lacks energy at home, and on the other hand, the world oil price will continue to drop. This is a new problem. However, the drop in oil prices will certainly stop in the future, the relations between supply and demand will also change, and petroleum will still remain as the main world energy source. China should vigorously develop its off-shore and on-shore fields and aim at both the short-term needs and long-term export.

The Long-Term Future of China's Foreign Trade Is Bright

The situation urgently demands that China improve the quality of her exported goods so as to enable her products to enter foreign markets amid the keen international trade competition. On the other hand, in the future, China should negotiate with those countries which have huge unfavourable trade balances with China on ways to balance bilateral trade.

Since the implementation of the policy of opening up, China's foreign trade and foreign economic relations have greatly devloped. The future of China's foreign trade is bright. In the more than 20 years between the Seventh 5-Year Plan and the end of this century, China will import a large number of advanced foreign technologies and a large amount of foreign funds, and increase the number of joint-venture enterprises. All this will enable China to continuously improve its commodity quality and strengthen China to continuously improve its commodity quality and strengthen its capability of earning foreign exchange. The development of "South-South Cooperation" will provide an enormous market for China's products, and will enable China to do more business with foreign countries.

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CSO: 4006/706

FOREIGN TRADE AND INVESTMENT

OFFICIAL EXPLAINS PRC TRADE ARBITRATION PROCEDURES

HK041217 Hong Kong LIAOWANG OVERSEAS EDITION in Chinese No 4, 27 Jan 86 pp 12, 13

[Article by Tang Houzhi [0728 0624 1807], deputy secretary-general of the Chinese Council for Promotion of International Trade and Foreign Economic and Trade Arbitration Commission: "China's Foreign Economic and Trade Arbitration is Being Gradually Perfected"]

[Text] Arbitration is one of the chief measures by which China can solve disputes arising in its foreign economic relations and trade. According to the stipulations in China's Law of Foreign Economic and Trade Arbitration (for trial implementation) the rules concerning external economic contracts, and regulations on the exploitation of offshore petroleum resources in cooperation with foreign enterprises, all disputes arising from: The operation of foreign economic relations and trade; the operation of joint-ventures using Chinese and foreign investment; the operation of enterprises in cooperation with foreign businessmen; technical transfers, and the exploitation of offshore petroleum resources in cooperation with foreign enterprises may be solved by means of arbitration.

Clauses on arbitration are usually included in bilateral accords on economic relations and trade between the Chinese and foreign governments. For example, the Sino-Philippines accord on trade, the Sino-Japanese accord on trade, the Sino-FRG accord on economic cooperation, the Sino-U.S. accord on trade relations, as well as the reciprocal conditions for goods delivery initialled between China and the Soviet Union and all East European countries have all stipulated that disputes which fail to be solved through negotiation between the parties concerned should resort to arbitration.

The Establishment and Function of the "Arbitration Commission"

Back in 1954, the Government Administration Council of the Central People's Government issued the "Decision on Establishing A Foreign Trade Arbitration Commission in the Chinese Council for Promotion of International Trade." Based on this decision, the Chinese Council for Promotion of International Trade formally founded its "Foreign Trade Arbitration Commission" in 1956, and drew up regulations for arbitration procedure for trial implementation. After China implemented the policy of opening up to the outside world in

1979, the State Council decided to change the "Foreign Trade Arbitration Commission" into the "Foreign Economic and Trade Arbitration Commission" in February 1980, which expanded the scope of cases in its charge, and increased the number of members (arbitrators). At present, the "Arbitration commission" deals with the following disputes: Those arising from all joint-ventures using Chinese and foreign investments; enterprises of management in cooperation; exploitation of natural resources in co-operation; technical transfers; monetary loans; investments in China; and the leasing trade; those arising from foreign trade (including processing imported materials, assembling imported materials, and compensation trade) as well as buying and selling in trust; those arising from the shipment; insurance and storing of commodities; and those arising from other professions of foreign economic relations and trade. The number of members of the "Arbitration Commission" has been increased to 65 from the original 21. With the approval of the State Council, an "Arbitration Commission" office is set up in the Shenzhen SEZ [Special Economic Zones], Guangdong, to deal with the cases in the SEZ. The office comprises 15 arbitrators, of which eight are well known in Hong Kong's legal, industrial, and commercial circles.

When dealing with cases, the "Arbitration Commission" persists in basing on facts with the laws as the criteria, while observing three principles, namely: Independence and taking the initiative into one's own hands; equality and mutual benefits; and reference to international practice. It also means observing Chinese law as well as attaching attention to the clauses in the contract signed between the two parties concerned and rational international practice. Over the years, the "Arbitration Commission" has heard and solved many cases based on these principles, to the satisfaction of both the Chinese and foreign parties concerned. Therefore, more and more contracts have been stipulated to be under the arbitration of the "Arbitration Commission," while the number of cases applying for arbitration continues to rise. In 1985, the "Arbitration Commission" handled 50 cases, of which 19 were dealt with by its Shenzhen office, mediated in more than 80 cases, and rendered consultation services in more than 100 cases.

The Combination of Arbitration and Mediation

One of the characteristics of China's arbitration is the combination of arbitration and mediation. The method of using mediation in solving disputes in civil affairs has a long history in China. The "Arbitration Commission" has brought forward this tradition in dealing with disputes arising from foreign economic relations and trade. Whenever cases can be solved through mediation, the "Arbitration Commission" has done its best to solve disputes in this way.

Such mediation is carried out on a voluntary basis by the parties concerned, and is not compulsory. Mediation is not a necessary procedure prior to arbitration, neither is it carried out in all cases undergoing arbitration. It is not carried out without principle, but under the prerequisites of drawing a demarcation line between right and wrong and distinguishing which side is to take responsibility. So long as the two parties concerned agree to it, before or after the arbitration procedure begins, mediation may be conducted anytime before an arbitration decision is made. In the course of mediation, if the two parties fail to reach a negotiation or reconciliation after a certain rational period of time, or if one of the parties concerned is unwilling to continue the mediation, the mediation should be stopped, the case rapidly dealt with according to the arbitration procedure, and a ruling made. Before the arbitration court is formed, mediation is conducted in the "Arbitration Commission," but after the arbitration court is formed, mediation is to be carried out in the arbitration court. Cases of disputes without previous negotiation on arbitration may also be accepted by the "Arbitration Commission" for mediation when the parties concerned apply for it. The mediation may be conducted face to face or through letters and telegrams. Those cases reaching reconcillation through mediation will be closed with a "mediation paper" written based on the negotiations of the two reconciliated parties. Thus the parties concerned are satisfied, and they usually implement the "mediation paper" on their own. Over the past two decades and more neither going back on one's word or refusing to implement the "mediation paper" has occurred. The "mediation paper" plays the legal role of a contract, and has some restriction on the parties concerned.

In recent years, China's arbitration organ and its foreign counterparts have created a new way of mediation in joint efforts, namely, "united mediation." The practice is as follows: In the event of dispute, the Chinese party concerned may request the Chinese Arbitration Commission for help, and the foreign party concerned may request its own country's arbitration commission for help. The arbitration organ of each country will send an equal number of personnel as mediators to conduct the mediation together. If the mediation is successful, the dispute concludes. If it should fail, arbitration will be conducted based on the stipulated clauses on arbitration in the contract. Through "united arbitration," we have successfully solved two cases involving comparatively large sums occuring in Sino-U.S. trade, to the satisfaction of both parties concerned. The stipulation concerning "united arbitration" are written down in both the "Protocol on the Solution to Disputes Over Sino-French Property Ownership of Industrial Enterprises" signed by China and the French National Bureau for Property Ownership of Industrial Enterprises and the "Accord on Cooperation in Arbitration" between China and the Italian Arbitration Association."

Mediation has increasingly caught the world's attention. When drawing up regulations on mediation to be recommended to the whole world, the United Nations Committee for International Trade Law attached considerable importance to China's practice and experience in mediation. The International Commercial Arbitration Committee especially invited the presence of China's arbitration organ at the "Seventh International Conference on Arbitration" held in Hamburg in 1982, and a special report was made on China's experiences in mediation. The main differences between China's practice of mediation and the Western countries methods are: The Western countries have mechanically split the procedures of arbitration and mediation, while China has combined them organically. The West strictly forbids mediators to act as arbitrators, and vice versa, while China allows mediators to act as arbitrators, and vice versa.

China's arbitration organ has established friendly contacts and ties with the major arbitration organs of all countries in the world. It has drawn up separate argeements on cooperation in arbitration and mediation, either in written form or orally, with Japan's International Commercial Arbitration Association, Japan's Ocean Shipping Club Maritime Arbitration Committee, and French National Bureau for Property Ownerhsip of Industrial Enterprises, the Italian Arbitration Association, Ghana's Arbitration Council, the Swedish Stockholm Commercial House Arbitration Council, and the U.S. Arbitration Association. At present it is carrying on talks with the arbitration organs of Australia, Austria, India, Belgium, Spain, and Hong Kong on agreements regarding cooperation in this respect. At the same time, talks have been carried out with Japan on signing agreements on cooperation in arbitration of disputes in shipbuilding and ship-repairing.

Answers to Questions by Foreign Businessmen and Investors

1. Must all cases of arbitration be conducted in China?

Chinese law explicitly stipulates that the place of arbitration may be decided by the two parties signing the contract, whether it be carried out in China or in other countries.

2. What juridical entity will be used in arbitration?

Chinese law permits the parties concerned to stipulate the juridical entity to be adopted in the contract. If it is not stipulated in the contract, the arbitration court will determine an appropriate juridical entity. However, regarding disputes arising in contracts on joint-ventures using Chinese and foreign investments, the exploitation of offshore petroleum and other natural resources in cooperation with foreign enterprises, only the Chinese juridical is adopted in arbitration.

3. Is it possible to designate foreigners as arbitrators when arbitration is conducted in China?

According to China's existing regulations for arbitration procedures, the current Chinese arbitration organs cannot designate foreigners to be arbitrators. However, China will soon revise the regulations for arbitration procedures, and will seriously and prudently study this issue when the time comes.

And 4. Is China considering taking part in the 1985 New York Pact?

It is only a matter of time before China does so.

Three Cases of Arbitration and Mediation

How does China's arbitration organs deal with cases? Three cases of arbitration and mediation dealt with in recent years follow:

-- A European buyer purchased from a Chinese seller a certain amount of commodities. The seller failed to ship it within the time stipulated in the contract, and a telegram was sent to the buyer 5 days after the stipulated date expired. The buyer disagreed, and negotiation proved to be fruitless. The buyer applied for arbitration to China's "Arbitration Committee." The arbitration court ruled that the Chinese seller should lose the lawsuit, and the Chinese seller paid an indemnity to the buyer based on the difference in the international market price on the shiping date stipulated in the contract and the price listed in the contract.

-- A foreign buyer bought a certain amount of Chinese goods from a Chinese seller at FOB value. It was stipulated in the contract that the goods in question be shipped to a certain port only and not be resold. After the contract was signed, the seller found that the buyer had resold the goods in question in Hong Kong. Negotiations between the two parties proved to be fruitless. The seller party then applied to China's "Arbitration Committee" for arbitration. The arbitration court clarified the fact that the buyer had violated the stipulations of the contract and had resold the goods in question to another region, and the court ruled: "If the buyer can accept the condition of delivery by changing the price to C.I.F., the selling party should agree to delivery. However, if the buyer should fail to exercise the above mentioned condition within a month of the arbitration award being issued, the contract will become void."

-- One of two executives of a Hong Kong company, initialled an accord with a corporation in Guangdong to carry out cooperation in production in the province. The cooperation between the two parties went smoothly. Then suddenly, there was a split within the Hong Kong company. The other Hong Kong company executive, who had not signed the accord, told the Guangdong company that the executive who had signed the accord with Guangdong had left the company. There had been a split within the company, and he would sign another accord with the Guangdong corporation to continue the original contract. The Guangdong corporation erroneously signed a new accord with him. Then, the executive who had signed the first accord came to Guangdong, requiring to continue to exercise the first accord. All talks between them proved to be fruitless. The first executive came to Beijing, asking the "Arbitration Committee" to conduct mediation. Through mediation, the head office of the Guangdong corporation in Beijing, succeeded in finding another site in Beijing and building another factory. The supply of raw materials and other production conditions were much better than the site in Guangdong, and it had brighter prospects for development. This solution was satisfactory for all parties concerned and the dispute was successfully solved.

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CSO: 4006/705

FOREIGN TRADE AND INVESTMENT

FOREIGN INVESTORS ENCOURAGED BY OPENING

OW292110 Beijing XINHUA in English 1622 GMT 29 Jan 86

[Text] Beijing, 29 January (XINHUA) -- China signed agreements last year that may eventually bring in foreign capital worth more than 9.74 billion U.S. dollars, a leading economic official said here today.

Huang Wenjun of the Ministry of Foreign Economic Relations and Trade said at a news briefing the record agreements were due to the success of the open economic policies China began in 1979.

According to Huang, the 9.74 billion dollars in agreements came in three forms: 5.85 billion dollars in direct foreign investment (up 121 percent over 1984), 3.53 billion dollars in foreign loans (up 84 percent), and 360 million dollars in commodity credits (up 63 percent).

The agreements specify intended loans and investments. Ultimate capital imports may be less. According to preliminary statistics, for example, China actually received 1.57 billion dollars in direct investment from foreigners last year, 2.43 billion in loans and 300 million in commodity credits.

To encourage capital inflow, China since 1979 has established special economic zones with incentives for foreign investment, opened more of its coastal cities to foreign investment, made its policies more flexible, and generally improved the investment climate.

Since then, Huang said, overall foreign investment agreements have totalled more than 16.2 billion dollars (4.6 billion dollars of which were actually implemented), foreign loan agreements have totalled 20.3 billion dollars (15.6 billion dollars implemented) and commodity credit agreements have totalled 1.7 billion dollars (1.3 billion dollars implemented).

The foreign loans were used mainly for the weak sectors of the national economy, especially for the construction of key projects involving energy, railways, harbors and raw materials, he said.

Plans for more than 1,300 sino-foreign equity joint ventures, over 1,500 contractual joint ventures and 46 sole foreign ownership ventures were approved last year alone, Huang said, along with four contracts for cooperative exploration of offshore oil.

Through the end of 1985, sino-foreign equity joint ventures totalled more than 2,300, while contractual joint ventures reached 3,700. Entirely foreign enterprises totalled 120, and 35 projects for offshore oil exploitation and exploration were approved.

Huang said over 90 percent of these enterprises have produced good economic returns, with some of them earning benefits in their first year of operation.

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CSO: 4020/217

JIANGSU CITY EXPANDS AGRICULTURAL EXPORTS

OW301055 Beijing XINHUA in English 0702 GMT 30 Jan 86

[Text] Beijing, 30 January (XINHUA) -- The policy of encouraging export-oriented agriculture enabled Suzhou, Jiangsu Province, to achieve a 30 percent increase in exports last year, compared to 1984, the PEOPLE'S DAILY reported today.

The city's suburbs earned 150 million U.S. dollars from exports of farm products and processed products in 1985, the newspaper said.

Suzhou is located in the Yangtze River delta, now opened to foreign investment and trade.

Local peasants are being aided by the government with material supplies and services to turn out products for export.

More than 2,000 shops set up by rural marketing and supply cooperatives purchase products from the peasants. Export-related warehouses and processing facilities are also being built.

Major export goods include rabbit hair, silkworm cocoons, pearls, straw mats, lamb hides, honey, dehydrated vegetables, cotton and lean-meat pigs.

The city now has 80 factories processing farm products for export, half of them run by townships.

Export-oriented farming will spur agricultural growth in economically developed coastal areas, said the PEOPLE'S DAILY in an accompanying commentary.

The expansion of export-oriented agriculture requires the concerted efforts of agricultural, foreign trade, commercial and industrial sectors, the commentary said.

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CSO: 4020/217

FOREIGN TRADE AND INVESTMENT

TIANJIN REPORTS SUCCESS IN SINO-FOREIGN JOINT VENTURES

HK010536 Beijing CHINA DAILY in English 1 Feb 86 p 2

[Text] Most Sino-foreign joint ventures established in the city of Tianjin have reported good initial results, according to the journal INTERNATIONAL BUSINESS.

In the past five years, the city set up 144 joint ventures with overseas businesses that attracted more than $225 million in foreign investment.

Major investors came from Hong Kong, the United States, and Japan; others are from Singapore, Canada, Britain, France, Denmark, Thailand, Australia, Malaysia and the Philippines.

Some 55 businesses that were established by the end of 1984 earned $13 million in foreign exchange last year.

Thirty businesses that started up during 1985 saw profit margins of 23 percent on average.

Six businesses recouped their investments. They include the Tianjin Otis Elevator Company, Ltd, the Liming Cosmetics Company, the Tianjin Chemical Fibre and Cotton Mill, the Sea of Kobe Bar, the Jiangcai Film Developing and Printing Company and the Tianjin Imported Automobile Parts Service Company.

The Tianjin Otis Elevator Company, Ltd, a Sino-U.S. joint venture, earned 55 percent of the total profits realized by the 30 businesses.

Last year, the total turnover of all these joint ventures reached 165 million yuan with profits of 37 million yuan.

The Otsuka Pharmaceutical Company, Ltd, a joint venture between Tianjin and the Otsuka Pharmaceutical Company of Japan, imported an automated system to produce polypropylene bottles of saline solution, glucose and other products for intravenous transfusion in hospitals.

The Otsuka factory is the first in China that has reached international health standards in terms of management and production conditions.

The Sino-French Winery, a joint venture between Tianjin and Remy Martin of France, produces Dynasty dry white wine, which has won three gold medals in international contests.

In addition to joint ventures, the city has also imported [word indistinct] million of new equipment for modernizing its industries since 1983 when the State Council granted Tianjin and 13 other coastal cities the freedom to engage in industrial redevelopment.

Tianjin's exports reached nearly $1.156 billion last year, and labour service teams working abroad earned the city $10 million.

The overseas edition of PEOPLE'S DAILY also reported that Fujian Province signed 74 contracts with overseas companies in 1985 worth $42 million.

The province sent 2,400 labourers to work abroad. Fujian has contracted with businesses in Hong Kong and 13 countries in Asia, Africa and Latin America to provide labour services in the field of navigation, construction, textiles, electronic assembly and food processing.

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CSO: 4020/217

FOREIGN TRADE AND INVESTMENT

FUJIAN GOVERNOR URGES MORE FOREIGN ECONOMIC TIES

OW080808 Beijing XINHUA in English 0709 GMT 8 Feb 86

[Text] Fuzhou, February 8 (XINHUA)--Governor Hu Ping of coastal Fujian Province has called for "courageous but steady" development of his province's foreign economic relations.

At the annual board meeting of the Fujian investment enterprise company, he said that 229 schemes involving imported technology had gone into operation in Fujian in the past two years. And 130 were scheduled to go into operation this year.

Hu said that foreign capital and technology should be used to update existing enterprises and develop economic bases in the home towns of overseas Chinese.

Economic results must be considered when using foreign capital and technology. Foriegn capital should be concentrated into small- and medium-sized projects offering quick returns.

Construction of communications and other infrastructure should continue to provide a better investment environment. Top priority should be given to the construction of energy and transport schemes, including the opening of sea and river shipping routes.

Hu called on the whole province to step up its scale and variety of exports. Besides tea, mushrooms and other traditional exports, the province should increase exports of aquatic products and try to sell more machine products on the international market.

He called for better ways of distributing foreign currency earned through exports to encourage enterprises to produce more for overseas.

He suggested that new technology should be imported to process farm product for export. The development of rural enterprises should also be encouraged.

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CSO: 4020/218

FOREIGN TRADE AND INVESTMENT

SHANGHAI OFFICIALS, MCDONNELL DOUGLAS TO DISCUSS TRADE

HK280409 Hong Kong SOUTH CHINA MORNING POST (Business News Supplement) in English 28 Jan 86 p 3

[By Francine C. Brevetti, recently in Shanghai]

[Text] A team of McDonnell Douglas executives from the United States will arrive in Shanghai this week to design a countertrade programme, a complement to its recent aircraft co-production scheme in the Chinese city.

James Brady, McDonnell Douglas's corporate director, international business offsets (St Louis), told BUSINESS NEWS recently the aircraft manufacturer is discussing a trade development programme with China and specifically with the Shanghai Aviation Industrial Corp [SAIC].

For the past six years, the U.S. aircraft manufacturer and SAIC have been designing a co-production agreement involving the sale of 26 Md82s to Shanghai, pilot training in Long Beach and technology transfer.

Twenty-five of the Md82s will arrive in China in kits which the SAIC will assemble. To this purpose, the U.S. company has trained Shanghai pilots and a production team at its Long Beach, California base.

The co-production agreement is one unit of a larger two-pronged offset programme, the other being the countertrade development programme.

The latter aims to give China a way to recoup some of the foreign exchange it spent on the co-production venture, Mr Brady said.

It should generate 30 percent of China's payments for the co-production agreement, Mr Brady added.

Although McDonnell Douglas officials have declined to value the co-operation agreement alone, Gareth C.C. Chang, president of McDonnell Douglas China Inc, said sales to China to date and an option to sell SAIC 15 more aircraft amounted to about U.S. $1 billion.

Meanwhile, McDonnell Douglas and Chinese officials will study the potential of exporting Shanghai-made aviation products and other Chinese goods, Mr Brady said.

And SAIC will form an agency, the Shanghai Fareast Aero Technology Import and Export Corp (SFAIC), to carry out the city's role under the countertrade agreement.

McDonnell Douglas will set up a countertrade office in Hong Kong in the middle of the year to co-ordinate agreements made with SFAIC.

Asked if the company will make money out of the countertrade agreement, Mr Brady replied: "We hope to develop a program to cover our costs with trade development." But, the company will also investigate avenues for profit, he added.

This might eventuate by developing a free service business involving third parties, trading houses or other arrangements, all of which will take time to conceive and develop, he said.

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CSO: 4020/217

FOREIGN TRADE AND INVESTMENT

SHANGHAI MAYOR WANTS MORE FOREIGN INVESTMENT

OW101102 Beijing XINHUA in English 1038 GMT 10 Feb 86

[Text] Shanghai, February 10 (XINHUA)--Shanghai is planning to attract more foreign investment over the next five years, according to Mayor Jiang Zemin.

Priority in using the new investment from abroad will go to infrastructure, tourism, and upgrading factories, the mayor said.

The municipality plans to enlarge its airport and seaport, already one of the 10 largest in the world. Other infrastructure improvements planned for the five year period are a subway, super highways and a new bridge. Telecommunications and the city's sewage system are also in for modernization.

The mayor said Shanghai will add 20,000 to its present 15,000 hotels beds. The city received 2.32 million tourists from abroad over the past five years, the annual average increasing 14 percent.

Mayor Jiang said factories to be modernized include those manufacturing buses, automobiles, aeroplanes, chemicals, televisions, optical communications fiber, tyres, textiles, paper, food, ready-to-wear, as well as agricultural and sideline processing plants.

Shanghai's industrial output value accounts for one ninth of the country's total. The city has 17,000 industrial enterprises, most with out-of-date equipment.

From 1979 to 1985, more than 1.2 billion U.S. dollars in investment came into Shanghai. The city has opened 73 Sino-foreign joint ventures, cooperative enterprises or foreign-owned enterprises. Another 87 are in the planning stage, the mayor said. He noted that Shanghai offers preferential terms to foreign investors.

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CSO: 4020/218

FOREIGN TRADE AND INVESTMENT

YUNNAN PREFECTURES PROMOTE CROSS-BORDER TRADE

HK040826 Kunming Yunnan Provincial Service in Mandarin 2300 GMT 29 Jan 86

[Text] The province's Dehong, Lincang and Simao prefectures and autonomous prefecture have seriously implemented the policv of opening up, so that the province's foreign trade can develop vigorously.

At this time, there are over a dozen small trade ports which are opening up. In addition, there are more than 50 cross-border trade markets. The province has gradually established an extensive and varied system for trade.

In 1985, the gross grading value of the province's border areas totaled 260 million yuan, a 2.1 increase compared to the previous year. In the wake of the province's economic development, particularly the development of light industry and the production of consumer goods for daily use, the province has changed its form of cross-border trade from one of mainly imported industrial goods while exporting agricultural and sideline products to one that imports agricultural, sideline, and native products while exporting industrial products. This has made the structure of import and export commodities more rational.

The development of cross-border trade has promoted a readjustment of industrial structure in the border areas. Commerce and the catering industry, service industry, tourism, construction industry, and transport industry are more prosperous than before. In 1985 there were over 30,000 people engaged in local industries in the border areas. The output value of local industries totaled over 100 million yuan. Also, in Wanding, Ruili, Longchuan, and other major ports, trade revenue accounts for some 75 percent of the financial revenue of these cities and counties.

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CSO: 4006/705

FOREIGN TRADE AND INVESTMENT

BENEFITS OF IMPORTING TECHNOLOGY DISCUSSED

Beijing ZHONGGUO KEJI LUNTAN [FORUM OF SCIENCE AND TECHNOLOGY IN CHINA] No 1, Sep 85 pp 42-44

[Article by Li Baoheng [2621 1405 1854]: "A Shortcut to Accelerating Our Technical Progress"]

[Text] To realize the strategic goals of our socialist modernization, we must rely upon advances in technology. If we do not base ourselves upon advances in technology, we cannot develop our production forces and become modernized.

So how can we accelerate our technical progress?

Importing technology is the road all developing countries must follow to accelerate technical progress. China, too, must self-consciously take this shortcut.

To import technology we must have an open-door policy, and must open up both internally and to the outside. Since our coastal cities have been opened, there have been remarkable advances in the importation of technology, especially over the last 2 years. Importation projects have grown abruptly, which has quickened the pace of the technical transformation of enterprises, has improved product quality, has increased the kinds of products, has raised the level of labor productivity and operational management, and economic results have been striking.

Actual experience in the coastal cities that have been opened has already shown that opening to the outside and importing technology is a shortcut to the acceleration of our technical progress, and that this national policy must be maintained over time, and certainly that we must not stop summing up our experiences nor stop improving.

At present, and regarding the importation of technology, there are some problems that we must look into, as well as earnestly resolve.

The first problem that warrants our attention is when we pay close attention only to the importation of equipment, not respecting the absorption of the technology.

The primary mode through which all areas in China are currently importing technology is the importation of equipment. Naturally, it is absolutely necessary to import certain key equipment or sets of equipment. However, the importation of technology is definitely not the same as just buying equipment. Right now, in the technology transformation projects of some provinces and cities, importing equipment (buying hardware) constitutes 99 percent of the activity, while importing technology (buying software) is only 1 percent, which has become a problem. This sort of problem occurs in the early period of importation, when it is perhaps unavoidable, but it requires prompt attention and conscientious resolution.

Japan after the war also depended upon the importation of technology to build itself back up. According to Japanese government statistics, in the 1950's Japan averaged an annual importation of 230 technical projects; in the 1960's it averaged 1,000 a year; and in the 1970's it averaged more than 2,000. By March of 1978, the Japanese government had imported 29,599 technical projects, coming from 40 countries and regions, but primarily from the United States and developed nations in Western Europe.

However, in the first half of the 1950's Japan imported just some key equipment and a few entire equipment systems, afterwards concentrating on the purchase of technical patents and design blueprints. In the early 1960's, the proportion of software that Japan imported had already reached more than 80 percent, and in the 1970's Japan further restricted the proportion of equipment imported (only a few percent). Why did Japan act this way? It is well worth our consideration.

The goals for Japan's importation of technology lay in promoting its technical progress. In the period from 1950-1975 Japan imported a total of 25,777 technical projects, and the cost of technical patent fees and fees for technical guidance totaled 5.73 billion US dollars. By the estimate of the Japanese government, had these projects been developed completely by the Japanese themselves, the necessary development expenses would have been $180-200 billion. This is to say that by importing technology the Japanese saved more than 95 percent of development expenses. The American Dupont Corporation spent $25 million to develop the nylon synthesis technology, with a development time of 11 years. Later, the Japanese Toyo Jinzoito Kokusai (artificial silk company) imported the technical patent for that technology for only $7 million, which was successful after 2 years of development and went smoothly into production.

We can see from this that when it came to importation, what Japan paid most attention to was not buying equipment but was the absorption and assimilation of advanced technology. The expenses used by Japan for absorbing and assimilating advanced technology was generally 2 to 3 times that of importing technology. During the period from 1955-1975, Japanese expenses for importing technology were 15 times higher, while expenses for research and development increased 74 times.

This goes to show that in importing advanced technology from abroad we must integrate with our own research and development, and with our own research and development as a base, closely integrate what is imported with absorption, assimilation, and innovation. At the same time that we import technology, we want to innovate on the basis of absorption and assimilation from the points of thinking and organization down to the action level of absorption and assimilation.

The post-war historical experiences of the Japanese steel industry are well worth our study. During the 1950's and 60's, the Japanese steel industry imported more than 300 technical projects from abroad, and of the six great technologies among them, those of materials pre-processing, high-temperature high-pressure blast furnace, ejection of heavy oil, the oxygen top-blown converter, continuous casting, and continuous rolling, all were imported from either Austria, the United States, France, or West Germany. On the basis of its absorption and assimilation, Japan transformed and synthesized these technologies, creating the Japanese convertor steel making technology and the continuous annealing technology, the rights to which were then sold abroad.

At present, China's situation of low level repeated importation of equipment is a common occurrence. For example, many provinces and cities have imported clothing production lines, which must also use foreign currency to import materials. Because clothing designs (software) cannot keep up, some clothing production lines have either often stopped or slowed down. The technology for this kind of production line is certainly not advanced, and it is difficult to export the products to earn currency. Or take for example household appliances like color television sets or refrigerators, for which many production lines have already been imported. Each year great quantities of components and spare parts must be imported, the necessary foreign currency for which is many times that of the imported production line. Since the products are chiefly for domestic sale, they are lacking in competitive capacity on the international market, earn little currency, and if this goes on, deficiencies in foreign currency will continue to increase.

Imported technology must certainly work toward the acceleration of China's technical advancement, industriously improving the quality of China's products, improving the labor production efficiency for enterprises, and enhancing the competitive capacity of Chinese products in international markets.

Of course, importing a few clothing production lines, color television production lines, and refrigerator production lines to satisfy the ever increasing material and cultural needs of the public at large, even to the extent of importing some clothing and household appliances, is also necessary. However, we ought not to unlimitedly and repeatedly import this kind of equipment and commodities. We must take control macroscopically, and that equipment that can only earn money domestically and that has no capacity to earn foreign currency on the international market, does not generally merit large volume repeated importation. Through market forecasts and resource surveys, some cities in Guangdong decided to not import refrigerator production lines, but to import the technology, to bring in foreign funding, and to run marble factories, granite factories, and concrete factories to develop the local resource advantages, using commodities to exchange for foreign currency and pay back foreign investment. This kind of technology importation is worth mentioning.

Overall, what should we import? What should we not import? We need accurate strategic thinking as a guide, definitely cannot afford to not be choosy about what we do and import blindly, importing whatever foreign countries have to offer. Each city that has been opened and each economic zone must carefully and painstakingly study its own developmental strategies, determine their own development directions and focus, proceed from their own development requirements, begin deep investigation and research into foreign advanced technology, and then import that technology with a well thought out plan. Then, energetically take up the work of absorption and assimilation. All of this before foreign things can be made to serve China and accelerate the progress of our technology.

In this new situation of abrupt development of revolutionary technologies, there is the possibility that the economic and technical gaps between China and developed nations will continue to expand. We should have a sense of urgency regarding the importing of advanced technology to hasten China's technical advance and toward strengthening the competitive capacity of Chinese products in international markets.

Moreover, we should be fully aware that truly advanced technology, especially the newest achievements to improve the technical fields, will not be able to be imported. In the view of developed countries, providing advanced technology to foreign countries is equivalent to digging one's own grave, and they will strive to stay 10 years ahead of us technologically. Therefore, the entire country, each city, and even each enterprise, must energetically enhance their own research and development, beefing up the research and development contingents.

Because of the limitations of our national strength, we cannot technically "completely catch up and surpass," but there are things we can do and things we cannot. The sophisticated technologies of fusion energy and space exploration are very important, of course, but their funding and manpower require a very strong real capacity, for which within this century China cannot gather its energies to tackle. It is not that we do not do it, it is that we cannot. Therefore, in these fields it would be hard to avoid an increasing technical gap with developed countries in the future.

To allow 1 billion people to live comparatively well-off lives, we must manufacture large quantities of good quality, low priced new products to satisfy the increasing needs of both urban and rural people in the areas of clothing, foodstuff, housing, and transportation. Presently, many material products needed by the public at large on a daily basis are far from being satisfactorily supplied, and the only way out is to depend upon technical advances, to take the shortcut of importing foreign advanced technology. Moreover, this technology is completely importable and our scientific and technical contingent is completely capable of absorbing and assimilating it.

Let's look at foodstuffs. Recently, Comrade Chen Yun pointed out that: "The people live day by day because of food, and if we provide nourishing, sanitary, convenient, and substantial foods for our people, this will be beneficial to our modernization." For these reasons, we must strive to import modern food production technologies and greatly develop a modern foodstuff industry. However, our existing foodstuff plants can be largely said to be mainly manual operations. They cannot provide nourishing, hygienic, convenient, and substantial foodstuffs for the public at large. Therefore, each operation and household must expend a great deal of time in providing three meals a day. The key to our developing a foodstuff industry having abundant resources and expanded markets lies in importing modern foodstuff production technology. There are still in China a large number of uncultivated resources that could be used, as for example pollen, (CI LI), (SHA JI), (YUE JU), etc., which are materials that can be used for various highly nutritious food products, and as long as we are good at importing advanced technology for their processing, those products are entirely capable of entering the international marketplace.

This shows that if when importing foreign advanced technology we can combine that with the resource advantages of our own country, then the products can possibly enter the international marketplace and have a competitive capability. For example, China is richly endowed with rare earth resources, and if we can import without delay new technologies that use rare earth elements to make new types of magnetic materials, as well as to use these magnetic materials to make small package, highly magnetic electrical machinery, then it would be possible to enter the international marketplace.

The world new technology revolution presses us to hasten our steps toward technical advancement, requires that we undertake a full scale restructuring of our economic system, and makes the Chinese economic system have an even stronger capacity to assimilate the newest, current scientific and technical accomplishments, to motivate scientific and technical advances, and to gradually create new production forces. The reform has already broadened the road for an open-door policy and for the importation of technology, which has proven that importing technology is beneficial to accelerating advances in China's technology, and that it is beneficial to developing socialist production forces. We should boldly and firmly move forward on this shortcut to accelerating technical advancement!

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FOREIGN TRADE AND INVESTMENT

BRIEFS

FUJIAN EXPORT FIGURES--Export trade developed rapidly during the Sixth 5-Year Plan in Fujian. The total of goods exported reached 2.02 billion dollars. During the Sixth 5-Year Plan the province promoted the export of new products and constantly explored new markets. There were 75 export products with the value of each over a million dollars. [Summary] [Fuzhou Fujian Provincial Service in Mandarin 1130 GMT 17 Jan 86 OW] /12640

FUJIAN'S FOREIGN CAPITAL--The total amount of foreign and overseas Chinese investment in Fujian Province reached more than U.S. $430 million in 1985. In addition to businessmen from Hong Kong and Macao, investors were also from the United States, Britain, Italy, Australia, Kuwait, Norway, Sweden, and Spain. The total exports from this province reached U.S. $465 million in 1985, an increase of nearly 10 percent compared with 1984. [Summary] [Fuzhou FUJIAN RIBAO in Chinese 16 Jan 86 p 1 OW] /12640

HEILONGJIANG COMMODITY EXPORTS--In 1985, Heilongjiang Province set a record for thp volume of the import and export trade. Last year the province procured 3,889.92 million yuan of commodities for export, an increase of 44.3 percent over that of 1984; and exported $411.49 million worth of commodities, an increase of 21.9 percent over that of 1984. [Excerpt] [Harbin HEILONGJIANG RIBAO in Chinese 21 Jan 86 p 1 SK] /12640

NEI MONGGOL OUTSIDE FUNDS--Over the past few years, Nei Monggol Autonomous Region has achieved great development in utilizing outside funds. According to statistics, during the 1979-1985 period, the region introduced $47.38 million, of which funds in 1985 were introduced by signing 21 joint-venture contracts and totaled $19.74 million. [Summary] [Hohhot Nei Monggol Regional Service in Mandarin 1100 GMT 6 Feb 85 SK] /12640

GUANGDONG TRADE FAIR--The first economic and trade exhibition held by our province in Hong Kong in January of this year attained satisfactory results. Nearly 30 items of new scientific achievements or products, including instruments, equipment, chemicals, foods, and Chinese-character computers that can be used in both Chinese and English languages, were displayed at the exhibition. The total volume of transactions amounted to more than U.S. $1.1 billion. [Text] [Guangzhou Guangdong Provincial Service in Mandarin 1000 GMT 10 Feb 86] /12640

SICHUAN TRADE, TECHNOLOGICAL COOPERATION--Sichuan Province made marked progress in foreign trade and technological cooperation druing the Sixth 5-Year Plan period. The province earned $835 million of foreign exchange from exports. Imports amounted to some $350 million. The province used nearly $60 million of foreign capital. At the same time, the province imported a large amount of advanced technology, some of which has been put into operation. This has played an active part in invigorating Sichuan's economy. [Summary] [Chengdu Sichuan Provincial Service in Mandarin 2300 GMT 29 Jan 86 HK] /12640

TECHNOLOGY IMPORTS--Shenyang, 25 January (XINHUA)--The province of Liaoning, center of China's heavy industry, signed 1,190 contracts for imports of foreign technology worth 860 million U.S. dollars last year, a local official said today. Zheng Silin, who is in charge of this province's foreign economic relations and trade, said last year's imports brought the total number of contracts since 1978 to 2,689 at a total cost of 1.59 billion dollars. Most of the imported technology has been used to renovate more than 1,000 of the province's 16,000 industrial enterprises involving energy, transportation, metallurgy, machinery, electronics, postal and telecommunications, chemicals, building materials, textiles and light industry. In addition, Zheng said, the province's power transmission industry has been modernized to the point where it can export complete equipment systems and undertake construction projects abroad. Imports have also played an important part over the past seven years in developing Liaoning's 12,700 new products, nearly 9,000 of them already in production. The import trade--requiring use of foreign investment--was with more than 20 countries and regions, including Hong Kong, Britain, the Federal Republic of Germany, Italy, Japan, Sweden, and the United States. [Text] [Beijing XINHUA in English 0835 GMT 35 Jan 86 OW] /12913

GUANGDONG TEXTILE JOINT VENTURE--Guangzhou--The Guangliantai Textile Enterprises Cotton Mill, a joint venture with a Hong Kong firm in Enping County, Guangdong Province, earned $10.5 million in foreign exchange for the state from July to December last year. Liu Guizhen, the mill's director and chief engineer, said the firm planned to introduce its yarns to new export markets, in addition to current sales in Hong Kong and Japan. The mill's 20,000 spindle production line first went into operation in mid-July last year. By the end of the year, it had produced 600 tons of cotton and blending yarns, all sold to Hong Kong and Japan. The mill represents an investment of more than $12 million, 60 percent from Guangdong and the remainder from Hong Kong. Guangdong will take 60 percent of the profits. The mill has imported advanced equipment from the United States, West Germany and Switzerland. It is one of the largest, most advanced textile mills in the province, said Liu. Product quality in the mill is excellent. According to the state's inspection standards for textiles, 95.6 percent of its products are top-quality, and the rest up to the first-rate level. The mill is designed with an annual production capacity of 33,200 spindles. Equipment for 10,000 spindles is currently being installed. [Article by staff reporter Chen Zhisong] [Text] [Beijing CHINA DAILY in English 4 Feb 86 p 2 HK] /6662

ZHEJIANG EXPORT PLAN--Hangzhou, 25 Dec (XINHUA)--Zhejiang Province has overfulfilled this year's export plan 20 days ahead of schedule. Export volume totaled 810 million yuan, an increase of 17.9 percent as compared with the same period last year. [Summary] [Beijing XINHUA Domestic Service in Chinese 0125 GMT 25 Dec 85 OW] /12640

ZHEJIANG FOREIGN TRADE--Zhejiang exported $920 million worth of commodities in 1985, overfulfilling the annual plan by 18.5 percent. Procurement of export commodities was expected to reach more than 2.4 billion yuan, exceeding the annual plan by 12 percent. The province's imports amounted to $250 million last year, resulting in an annual average increase of 69 percent during the Sixth 5-Year Plan period. The province ranked 13th in export trade in the country in 1980. It ranked 8th in 1985. [Summary] [Hangzhou ZHEJIANG RIBAO in Chinese 1 Jan 86 OW] /12640

XINJIANG TEXTILE, COTTON EXPORT--Urumqi, 18 Jan (XINHUA)--Foreign exchange earned by Xinjiang by exporting textile products and cotton increased by more than 45 times during the Sixth 5-Year Plan period, accounting for 47 percent of the total foreign exchange earned by the autonomous region during this period. The products were exported to Europe, the United States, Japan, Hong Kong, and other countries and regions. The Xinjiang Textile Products Import and Export Company has made efforts to ensure cotton supply, and, as a result, the export of cotton rose from 5,000 metric tons in 1981 to 50,000 metric tons last year. [Summary] [Beijing XINHUA Domestic Service in Chinese 0220 GMT 18 Jan 86 OW] /12640

BEIJING FOREIGN CAPITAL UTILIZATION--Last year Beijing Municipality signed contracts with foreign countries for more than 400 projects of foreign capital utilization and technology imports, involving $1.2 billion, a more than 100 percent increase over 1984. [Excerpt] [Beijing BEIJING RIBAO in Chinese 22 Jan 86 p 1 SK] /12640

SHANGHAI EXHIBITION CENTER--Shanghai, 5 Feb (XINHUA)--An international banking syndicate signed an agreement here today to provide a 175 million U.S. dollar loan for the construction of part of the massive Shanghai exhibition center. It will be the city's biggest foreign investment project, said an official of the bank of China's Shanghai branch, which signed the agreement with the syndicate. The loan includes 30 million dollars provided by the U.S. architects, portman and associates. Sponsored by the Bank of China branch, the syndicate consists of 19 banks from Australia, Canada, China, France, Federal Germany, Japan, Netherland, the United States and Hong Kong. Located on the busy Nanjing Road, this section of the center has a floor space of 180,000 square meters, and is expected to be completed in 1989. It includes a luxury hotel with 700 rooms, two apartment housing towers, a commercial building, a theater and an exhibition building. [Text] [Beijing XINHUA in English 1517 GMT 5 Feb 86 OW]

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CSO: 4020/217

SPECIAL ECONOMIC ZONES

SHANTOU OFFICIAL OUTLINES SPECIAL ZONE'S DEVELOPMENT PLAN

HK130703 Beijing ZHONGGUO XINWEN SHE in Chinese 1438 GMT 9 Jan 86

[Text] Guangzhou, 9 Jan (ZHONGGUO XINWEN SHE)--Liu Feng, chairman of the Shantou Special Economic Zone Administration, has said: The zone has laid an initial foundation in industry with a certain degree of adaptability. In the new year, we must give full play to its role as an Overseas Chinese native place and work hard to develop the export-oriented economy.

Liu Feng continued: Since its establishment at the end of 1981, the Shantou Special Economic Zone has strengthened its ties with natives of Shantou residing abroad, and compatriots in Hong Kong and Macao, to seek their contributions to the construction of the zone through its advisers group and investment and consultancy company in Hong Kong. In addition, the zone also adopted some preferential policies for their investment. By the end of 1984, 42 foreign and Hong Kong companies had invested in the zone. In 1985, foreign investors who came to the zone increased by a big margin. From January to November 1985, contracts for 25 investment projects were signed, with a total investment of HK $180 million. A number of investment projects are still under discussion.

Liu Feng also said: From the very beginning of its founding, the zone has developed industry and tourism in adherence to the principle of relying mainly on foreign funds in capital resources and giving first place to the development of industrial production and export business. Meanwhile, it also built a certain number of horticultural gardens, orange orchards, fishing grounds and wild animal breeding farms by making full use of the advantages of Shantou such as intensive and meticulous farming, its long coast line, and abundant aquatic resources. Moreover, over 80 percent of manufactured goods of the zone such as plastics, clothes, electronic toys, carpet, porcelain, and artificial ornaments are sold in world markets, and products for export also include some farm and aquatic products.

Liu Feng concluded: From now on, the Shantou Special Economic Zone Administration will adopt the principle of using advanced foreign technology to exploit local natural resources, develop local major industries, and promote local scientific research. Priority will be given to importing technology for the development of the electronics, plastics, petrochemical, food-processing, up-to-date packing, textile and other light industries. This will help build the zone into a base for the processing industry which is mainly aimed at export of local products.

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CSO: 4006/706

SPECIAL ECONOMIC ZONES

SHENZHEN OFFICIAL OUTLINES PLANNING MEASURES

HK260521 Guangzhou Guangdong Provincial Service in Mandarin 0400 GMT
26 Jan 86

[Text] Shenzhen special zone's economy will develop in a sustained, steady, and coordinated way this year. Zhou Ding, deputy secretary of the city CPC Committee and vice mayor, pointed out at the city planning work conference which concluded yesterday: To ensure sustained, steady, and coordinated development of the city's economy this year, we must get a thoroughly good grasp of the following tasks:

1. Control general social demand. In particular, we must strictly control investment in fixed assets. This year and next, we will in principle not open up any new areas. We will concentrate forces to fill out, perfect, and improve standards in the areas already opened up.

2. Strengthen planning guidance and economic legislation and supervision work, and improve macroeconomic control.

3. Readjust the structure of the enterprises, and harmonize relations between trades in accordance with the guideline of light, small, precision, and new, and with the principle of cooperation between specialized departments.

4. Continue to readjust and perfect the financial and foreign exchange control systems, and strive to open up channels for making foreign exchange through exports. We must ensure steady growth in financial revenue and achieve balance in foreign exchange income and expenditure, with a slight surplus.

/12640
CSO: 4006/706

SPECIAL ECONOMIC ZONES

SHENZHEN SPECIAL ZONE FORMS NEW FINANCIAL SYSTEM

HK030944 Beijing ZHONGGUO XINWEN SHE in Chinese 0648 GMT 1 Feb 86

[Report by Wu Yixun [0124 0001 3169]: "Shenzhen Special Zone Forms New Financial System"]

[Text] Shenzhen, 1 Feb (ZHONGGUO XINWEN SHE)--The Shenzhen Special Economic Zone has formed an interrelated, multilayered, and export-oriented financial system with the central bank (the People's Bank of China) as its nucleus, which is mainly composed of the specialized state banks, and includes banks run by foreign capital, trust and investment companies, financial companies, credit leasing companies, and other financial enterprises.

Since the promulgation of the "PRC's regulations on the administration of foreign-capital banks and banks of Sino-foreign joint ventures in the special economic zones" by the State Council in April last year, four banks including the British-owned Hong Kong and Shanghai Banking Corporation and the Chartered Bank, French-owned Indosuez Bank, and the International Commerce and Credit Bank of the Middle East have successively set up their business branches in Shenzhen. At the end of last year, the French bank, Societe General, also upgraded its representative office in Shenzhen to be a branch. There are also three PRC-Capital banks in Hong Kong which have opened branches in Shenzhen in addition to 13 representative offices opened by other foreign-capital banks and banks owned by Hong Kong Chinese. Hong Kong's Ming An Insurance Company set up its branch here a long time ago to promote business.

The entry of foreign capital into Shenzhen has served as a link and paved the way for Shenzen to import foreign capital, attract big international consortiums' investments, and promote international economic exchanges. At the end of October last year, after its establishment in the Shenzhen special zone for only 2 months, a stock company cooperated with Shenzhen's agricultural bank to jointly issue financial bonds valued at more than 29.1 million yuan.

At present, there are 13 financial institutions in Shenzhen, which are not banks by nature, including financial companies, trust and investment companies, credit leasing companies, and others. They may provide credits directly, and are more flexible than banks.

In Shenzhen, various specialized banks operated by the state may exchange their business items with no restrictions on fields or types of business. Beside the Bank of China, other banks may also do business connected with foreign exchange. These banks make use of various ways and means to expand their business overseas, and have effected some breakthroughs. Last year, the Industrial and Commercial Bank established relations with Hong Kong's Po Sang Bank and Kincheng Bank, and has become their agent. In October last year, Shenzhen's Bank of China cooperated with Japan's Hokkaido Takushoku Bank to jointly run "Shenzhen Industrial Development Credit Fund." The first installment of capital was 100 million, which is used to support Shenzhen's development of its export-oriented economy.

Other financial institutions in Shenzhen have opened up new fields of business, which overstep traditional business items. These include international settling of accounts, capital and credit investigation, market consultation services, issuing bonds, credit leasing business, and so forth. Shenzhen's People's Insurance Company has developed more rapidly. It covers 36 kinds of business, which fall into four main categories, including insurance against political risk, and so on.

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CSO: 4006/706

SPECIAL ECONOMIC ZONES

XIAMEN ECONOMIC ZONE IMPROVES TOURIST SERVICES

OW031117 Beijing XINHUA in English 1043 GMT 3 Feb 86

[Text] Fuzhou, February 3 (XINHUA)--Better trained hotel staff in Xiamen Special Economic Zone have won a good name for the zone as one of the most attractive tourist centers.

In the Mandarin Hotel, registration and other procedures for tourists can be completed within 10 minutes; room attendants are required to deliver hot water to guests within three minutes after they enter their rooms; waitresses take menus to the guests within one minute after they enter the restaurant; and the switchboard is required to put through telephone calls within three seconds.

The excellent service even moved Richard Nixon, former president of the United States, when he visited the zone last September. He wrote: "For those who come to Xiamen either for business or tourism, I enthusiastically recommend the Xiamen Mandarin Hotel.

The service, the cuisine and the warm hospitality of the staff could not have been better, he said.

The Xianmen Jinbao Hotel, another major one in the SEZ, conducted a survey among 54 overseas tourists in order to find out where [as received] still needs improvement.

General manager Cai Huilong said that the hotel plans to increase dish varieties and improve cuisine according to the survey result.

The city, with a population of 330,000, built and renovated eight luxury hotels with 1,493 rooms and 3,465 beds last year, nearly 40 percent more than in 1984.

Because of improved services, it attracted 80,000 overseas tourists, 21,000 more than in 1984.

The improvement in services is mainly due to better training of hotel staffs, said Peng Yiwan, deputy director of the municipal tourism bureau.

Xiamen set up a tourism school in 1982 and entrusted colleges to hold training courses. Hotels have also organized spare-time training classes.

Managers, interpreters, guides and other personnel have received training in Guangzhou, Shanghai, Beijing, Hong Kong and Thailand.

More than 200 graduates from the tourism school are now working in the major hotels in Xiamen.

Xiamen now has the capacity to accommodate 100,000 foreign guests a year, the tourism bureau deputy directors said.

In addition, it can accommodate more than one million domestic tourists each year.

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CSO: 4020/218

SPECIAL ECONOMIC ZONES

BRIEFS

FOREIGN EXCHANGE TERMS--In order to lure more foreign capital, Xiamen has worked out preferential terms for branch offices of foreign and joint venture banks, according to a spokesman for the Xiamen Government. Speaking from Xiamen, he said after their establishment, the bank branches will be exempted from the consolidated industrial and commercial tax for five years. In addition, foreign loans made to these branches will initially be exempted from interest withholding tax. The consolidated industrial and commercial tax is 5.5 percent and the interest withholding tax 10 /034:3,5. The spokesman said in view of Xiamen's need for rapid industrial development, the two measures were deemed necessary to boost incoming funds. "Industrial activity is closely related to the availability of capital," he said. Recently, Xiamen allowed banks with foreign interests to fix their own interest rates on foreign currency deposits. [Text] [Hong Kong SOUTH CHINA MORNING POST (Business News Supplement) in English 4 Feb 86 p 5 HK]

/12929
CSO: 4020/217

TRANSPORTATION

INLAND WATERWAY FREIGHT TRANSPORT REVIVED

OW130941 Beijing XINHUA in English 0857 GMT 13 Feb 86

[Text] Beijing, February 13 (XINHUA)--China's inland waterways are being dredged and repaired after years of neglect, today's ECONOMIC DAILY reports.

Highways and railways built since the late 1950s have replaced water routes as the main means of freight transport over the last 30 years. Previously much domestic cargo was moved via river and lake navigation.

The rural economic boom over the past few years has made for brisker commodity circulation and land transport can no longer keep up with the growing demand for movement of cargo.

To ease the transport crunch, a number of local governments have tackled the problem of improving the inland waterways.

Zhejiang Province invested 70 million yuan in construction of communication systems this year and over half of this sum went to upgrading navigation facilities.

Shaanxi Province will spend 20 million yuan this year to improve navigation on the Yellow and Hanshui rivers.

Over the next five years, Hubei Province will reopen 13 locks on the Yangtze River which are now impeding navigation.

According to ECONOMIC DAILY, China had 19,000 kilometers of inland waterways in use at the end of 1985, up a thousand kilometers from the year before.

Goods transported via water last year amounted to 85.5 billion tons per kilometer, up 12 percent over 1984. The growth rate for freight on the waterways surpassed that for highways and railways.

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CSO: 4020/201

TRANSPORTATION

BRIEFS

ADDITIONAL GATEWAYS OPENINGS--Dalian, February 17 (XINHUA)--China will open a number of gateways, including Nanjing, to the outside world this year, according to a national meeting which opened here today. To meet the needs of the open policy for overseas investment, China opened eight gateways to the outside world last year, including Aotou, Lianhuashan, Foshan, Guanghaigang and Dayawan nuclear power station wharf in Guangdong Province, Dandong and Dalian airport in Liaoning Province and Shijiu in Shandong Province. China has so far opened 105 outlets via sea, land and air, of which 56 have been opened in the past six year. [Text] [Beijing XINHUA in English 1112 GMT 17 Feb 86 OW] /6662

IMPROVED TRANSPORT ALLEVIATES COAL SHORTAGES--Beijing, February 15 (XINHUA)--A nationwide shortage of coal has been alleviated thanks to growing rail transport capacity, today's ECONOMIC DAILY reported. "The increased availability of coal supplies has been important in the steady growth of the national economy," the paper said. The paper said that railways transported 127 million tons of coal from north central China's Shanxi Province, the country's biggest coal producer, to 25 other parts of China last year--75 percent more than in 1980. Much of the increase was due to increased electrification and renovation of major rail lines for shipping coal from Shanxi. Complementing the rail expansion, coal wharves have been built in Qinhuangdao and Shijiu ports on China's east coast. The ports have been used to ship coal elsewhere in east China as well as abroad. Improved supply has cut the price of coal from its 1984 price of 200 yuan a ton to its current price of 90 yuan in Jiangsu Province, a central location in eastern China for developing rural industry. [Text] [Beijing XINHUA in English 1039 GMT 15 Feb 86 OW] /6662

INCREASED PORT EFFICIENCY--Dalian, February 17 (XINHUA)--China is to transfer this year the managing power of Shanghai and Dalian ports to the local authorities to achieve better efficiency. This was announced by Zhao Weichen, vice minister of the State Economic Commission, at the national meeting on port work which opened here today. In China, all the ports are managed by the Ministry of Communications. The power transfer is considered as an important measure in restructuring China communications system, and trials at north China's Tianjin port proved a success. After getting the managing power early last year, Tianjin port office greatly improved the efficiency by carrying out technical transformation and introducing a contract system to its subordinate enterprises. According to the statistics, the freight volume at the port last year registered a 15 percent increase over 1984. Profits rose by 41.2 percent and one-third of the port equipment was replaced by new ones. [Text] [Beijing XINHUA in English 1326 GMT 17 Feb 86 OW] /6662

DALIAN AIRPORT OPENED--Beijing, February 8 (XINHUA)--An airport in Dalian, northeast China, will soon be open to foreign aircraft, according to a decision of the State Council and the Central Military Commission. Opening of the Zhoushuizi airport is expected to boost northeast China's international exchanges and tourism. The airport can accommodate large- and medium-capacity planes. [Text] [Beijing XINHUA in English 0856 GMT 8 Feb 86 OW] /6662

CSO: 4020/201

CHINESE MEDIA ON FOREIGN ECONOMIC AFFAIRS

RECENT REFORMS IN SOVIET ECONOMY ANALYZED

Shanghai SHIJIE JINGJI WENHUI /WORLD ECONOMY FORUM/ in Chinese No 5, 5 Oct 85 pp 40-45

/Article by Tang Zhuchang /0781 2612 2490/ /

/Abstract/ Generally speaking, the Soviet economic reform includes macroeconomic control and economic flexibility. Separate, exclusive management systems have to be coordinated while long-term project development should aim at the overall equilibrium of the national economy. Plan flexibility can further harmonize growth. Enterprise autonomy is encouraged, especially in the use of funds for wages, output growth and fringe benefits. Contracting programs are being expanded in agriculture, industry, construction and transportation with the setting up of work teams. Individual, private economy is supported in supplementing the public ownership economy in order to exploit economic potential of various kinds. Foreign capital is welcomed in trade by setting up joint corporations with the West. Market forces have to be allowed for. Pay incentives and democratic management are carried out as worker opinion is being respected. In the past 2 years, enterprises taking part in the pilot program have achieved results in faster output gains, better fulfillment of supply contracts, higher productivity, and more emphasis on technical innovation using their own resources. In 1983 (1984), increases of national income, gross industrial output and gross agricultural output are, respectively, 3.1 percent (2.6 percent), 4 percent (4 percent), and 5 percent (0.4 percent) over the previous year. The gain in labor productivity is 3 percent, since 93 percent of industrial growth is achieved by higher productivity. Economic reform will be stimulated by Gorbachev's pragmatism in contrast to the Khrushchev dream of the forthcoming communist "paradise." Better late than never.

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END

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5 March 1986

China Report

ECONOMIC AFFAIRS

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NATIONAL POLICY AND ISSUES

GUANGMING RIBAO ON DEFINITIONS OF WORKING CLASS

HK101319 Beijing GUANGMING RIBAO in Chinese 27 Jan 86 p 4

[Article by Pan Peixin: [3382 1014 2450]: "Controversy Over 'Who Belongs to the Working Class' in Foreign Countries"]

[Text] In modern capitalist society, due to the scientific and technological revolution and the development of state monopoly capitalism, great changes have taken place in the structure of social classes, and the question of "who belongs to the working class" has become a never-ending controversy. Scholars from both socialist countries and developed capitalist countries all have different opinions. There are mainly three different opinions:

First, only the hired laborers creating surplus value belong to the working class. Their often-quoted basis is that Marx once pointed out that "in economics, proletarians can only be understood as hired laborers producing and increasing "capital." For example, Soviet scholar Shemionov [Xie Miao Nuo Fu 6200 5379 6179 1133] defined the working class as: "The working class under the condition of capitalism is the class of contemporary hired workers who do not have their own means of production but sell their labor to capitalists and directly produce surplus value and capital for capitalists." The book "State Monopoly Capitalism--An Introduction to Marxist Political Economics" published by the French Communist Party says: "Regardless of the complexity and nature of labor (whether physical or mental labor) and the departments of labor, the criterion for determining the working class should be mainly based on three facts: Non-possession of the means of production, non-possession of commodities produced, and non-participation in the distribution of surplus value.... These facts highlight the decisive criterion of the working class as creating surplus value in the field of material production." This is the definition in a so-called narrow sense.

According to this division, non-productive workers, commercial workers, administrative personnel, scientific and technological personnel, and so on have to be excluded from the working class. Many people believe that this definition narrows the concept of the working class. It is acceptable if this definition only refers to the working class in the 19th century and early 20th century, as capital absolutely predominated in the industrial departments at that time. Because the non-productive industry was not very developed at that time, the few workers in this field primarily served the needs of the capitalist class.

However, at this point, this definition does not tally with the actual conditions of the working class, as it underestimates the major changes taking place in the conditions and nature of labor in the non-productive field as a result of the new scientific and technological revolution.

A second definition emphasizes hired labor and does not link the class attributes of the working class with the process of participating in the production of surplus value. It also incorporates the hired laborers working in non-productive fields into the working class. For example, in the special works on the proletariat of the FRG, GDR scholars included into the proletariat "all the hired laborers, whether they work in the field of material production or the fields of circulation, administration, and service." They defined the working class as "proletarians who do not possess the means of production but have to sell their labor to capital owners to be exploited in the process of capitalist reproduction." This is a definition in a so-called broad sense.

A third definition emphasizes the role of the working class in the organization of social labor to be merely an executive function. It believes that the second definition is basically correct but needs to be more specific, particularly in view of the emergence of the current tendency of mixing up proletarians and hired personnel. This is because the category of hired personnel includes various social classes and cliques.

Therefore, judged by the relationship of the means of production and other criteria, hired laborers cannot possibly belong to a single class. This definition stresses the role of the working class in the organization of social labor to be merely an executive function. It defines the working class as "the proletariat, referring to the class of hired laborers who do not possess the means of production and who have to sell their labor to make a living to be exploited by capitalism and exercise their fucntions as mere executives in the fields of production, circulation, office work, and the service trades."

Among the questions under discussion are two important ones: First, the class attributes of hired mental laborers; and second, the class attributes of hired laborers working in non-material productive departments.

There are several different opinions about the class attributes of hired mental laborers. Some people classify most of the hired intellectuals, primarily engineers and technicials, into the ranks of the working class. For example, Soviet scholar Lumyenkav [Lu Mian Cai Fu 7627 4884 6846 1133] believes that "just like workers, engineers and technicians generally do not have ownership of the means of production. According to this basic characteristic, they should be included into the working class." Some scholars include all the hired engineers, technicians, scientific and technological personnel, teachers, doctors, writers, artists, and so on into the proletariat. For instance, Lamuzesi [La Mu Ze Si 2139 1191 3419 2448] pointed out: "Today, in addition to physical laborers, it is completely justifiable to include mental laborers, primarily engineers and technicians and scientific and technological personnel, into the category of the proletariat in factories. Despite their employment terms which often put them into privileged positions, they still participate in the creation of surplus value. In other words, they are still exploited by the owners of the means of production."

Some other scholars, like the French scholar Marley [Ma Lai 7456 5490], include almost all the hired mental laborers into the working class. He regards all the highly skilled workers in technologically advanced production departments, engineers, technicians, and so on as "the new working class." He believes that modern capitalism is in a stage in which scientific and technological knowledge is the decisive "productive force." Therefore, the "new working class" has replaced the "old" working class and become the outstanding vanguard of revolutionary and socialist movements."

There are also some people who only include some intellectuals into the working class and believe that the majority of them are a component of the intermediate strata of capitalist society. French scholar Mar [Ma Er 7456 1422] holds that "while some intellectuals belong to the working class, most of them belong to the intermediate strata and a few of them belong to the class of capitalists."

Some Western scholars only count hired physical laborers as the working class regardless of the changes in specific historical conditions, and exclude all the hired mental laborers from the working class and classify them as the "intermediate class," the "middle class," or "the new middle class." They talk glibly about this "middle class" including "almost the whole Western society," and "the vanishing working class," and so on. Many people believe that these terms are not scientific, as they include not only the intermediate strata but also the working class and a considerable part of the capitalist class into the "middle class." Some even include all the "white-collar personnel" into this "new middle class." Therefore, the "middle class" they mention is in fact a mixture of all classes and not a single class. Members of any class should have common class interests, but the members of this "middle class" do not have class interests in common.

Regarding the class attributes of hired laborers working in non-material productive fields, in the 1960's, some communist parties in developed capitalist countries believed that as hired laborers working in non-material productive fields (excluding transportation and post and telecommunications industries) do not create any surplus value, they should not be regarded as members of the working class. In the 1970's, some parties changed their viewpoints. In their party documents, they have looked upon the ordinary office clerks, hired laborers in service trades, and the ordinary state and city government functionaries (not including senior officials) as members of the working class.

In 1967, the Soviet magazine MIROVAYA EKONOMIKA I MEZHDUNARODNYYE OTNOSHENIYA once initiated a discussion on service trades. An article carried in the Soviet encyclopedia published in 1974 points out that more and more mental laborers are being exploited by capitalism and that they use their labor to create surplus value and are included into the general scope of workers. This has actually affirmed that, like departments producing materials, service trades can also create value and surplus value. In this regard, some scholars explicitly point out: "Just like proletarians of industry, agriculture, commerce, and office work, the proletarians working in service trades also objectively exist. The hired teachers, doctors, and laborers working in various service trades are different from the hired engineers, technicians, and scientific and technological personnel only in the lack of a substantial nature of their labor. The difference between physical laborers and them is similar to the difference between engineers and technicians and scientific and technological personnel. The common point of the two should not be covered up, as both of them are creators of surplus value and targets of exploitation. Based on this characteristic, we must count employees of the mass media and some other employed professionals as proletarians working in service trades."

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CSO: 4006/729

ECONOMIC PLANNING

LIAOWANG ON DIVERTING WATER FROM SOUTH TO NORTH

HK120938 Hong Kong LIAOWANG OVERSEAS EDITION in Chinese No 4, 27 Jan 86 pp 16-17

[Article by LIAOWANG reporter Li Shiyi [2621 0013 5030]: "A Strategic Plan for Diverting Water from the South to the North of China"]

[Text] The surging waters of the Huang He flow across the dry and semidry regions in northwestern and northern China. The splendid Chinese civilization with a history of several thousand years has always been linked to this golden river. Now, with the simultaneous growth of the population and the economy, the waters of the Huang He have found it more and more difficult to make ends meet. Does China have any good plan to solve this problem?

Some time ago, China's water conservancy experts made an on-the-spot investigation on the feasibility of diverting water from the tributaries of the upper reaches of the Chang Jiang to the Huang He. At a report meeting held by the Chinese Land Economics Society, the experts disclosed their research achievements, which were called the "Plan for Diverting Water From the South to the North in Western China." People hold that it is a great strategic plan for developing northwestern China and for rejuvenating northern China and that it should be studied with great interest.

The Huang He Is Short of Water for Demand Exceeds Supply

In water resources, China is rich in the south but poor in the north. The annual discharge of the Huang He is 56 billion cubic meters, one-seventeeth that of the Chang Jiang. If we calculate the annual discharge on a per capita basis, the Huang He is about one-fourth of the Chang Jiang; if we calculate it on a per mu cultivated land basis, the Huang He is about one-ninth of the Chang Jiang. The shortage of water resources in the Huang He is an accomplished fact.

People annually use 27.1 billion cubic meters of water from the Huang He to develop industrial and agricultural production, accounting for some 48 percent of the annual discharge of the Huang He. Such a high use rate of a large river's water resources is rare even in other parts of the world.

With 1.6 billion tons of silt washed away by the water annually, the Huang He is also one of the large rivers in the world with the highest sand content.

Due to the insufficient water flow, several hundred million tons of silt is deposited in the riverbed, bringing about a gradual rise of the riverbed on the lower reaches year after year. In some sections the riverbed rises about 1 meter every 10 years. The riverbed in some places is more than 10 meters higher than the ground, so that it looks like a "suspension river." If the two or three hundred million cubic meters of water needed for washing the silt into the sea is also taken into account, there would be little water left in the Huang He.

These are only rough calculations. Judging from the hydrological data in the past several decades, the water of the Huang He is more often low than high. For 18 years its annual discharge of water was less than 40 billion cubic meters, with only 20.1 billion cubic meters registered in 1960. For 16 years it was more than 60 billion cubic meters. The highest annual discharge of water reached 86.1 billion cubic meters in 1964. That is to say, the fluctuations of the discharge vary between 100 to 400 percent. In the dry season, increased demand for water often leads to a number of river sections drying up.

The situation characterized by demand for the Huang He water exceeding supply will be more serious in the future. Some experts estimate that by the end of this century the water for industrial and agricultural use in the Huang He valley will increase to 37.5-69.6 billion cubic meters annually. The former figure was projected by the Huang He Water Conservancy Commission as necessary to achieve a balance between supply and demands, while the latter was supposed to be that needed by various provinces, municipalities, and autonomous regions. Both figures shows people's great expectations for the Huang He water. Such a great demand can hardly be sustained by the Huang He.

Why Is it Necessary to Divert Water from the Upper Reaches of the Chang Jiang?

The Huang He is short of water while the Chang Jiang has enough water and more to spare. Diverting water from the Chang Jiang to the Huang He has been something yearned for by the people day and night over the years. China's water conservancy experts have put forward three plans for diverting water from the south to the north:

Diverting water in eastern China: The plan involves drawing water from Jiangdu, which is situated in the lower reaches of the Chang Jiang and delivering it to Hubei Province and Tianjin City through the Beijing-Hangzhou grand canal, the Nansi Hu, and the Dongping Hu, and across the Huang He. It is now being put into effect.

Diverting water in central China: The plan involves drawing water from Sanxia, which is situated in the middle reaches of the Chang Jiang, and delivering it to Hebei Province and Beijing through the Dan Jiang in Hubei Province and Fangcheng County in Henan Province and across the Huang He near Zhangzhou.

Diverting water in western China: The plan involves drawing water from the Tongtian He in Qinghai Province, which is situated in the upper reaches of the Chang Jiang, and delivering it to northwestern and north China through the Bayan Har Shan and the Huang He.

Wtih their own advantages, disadvantages, and roles, the three plans cannot replace one another. The plans for eastern and western China each have their own merits for solving the problem of water shortage in northern China, but they cannot solve the problem of water shortage in northwestern China.

Northwestern China has a vast territory and a sparse population. Rich in natural resources, it is dry and has little rainfall. The annual rainfall is less than 400 mm and in some areas it is only 100-200 mm or even as little as several dozen mm. But the evaporation is several dozen times higher than the rainfall. To switch its large population and the focus of its economic development from the southeast to the northwest, China should solve the problem of water supply in the northwest. Otherwise, the plan will simply become castles in the air. For instance, the Qaidam Basin in western Qinghai, which is situated at the source of the Huang He, is rich in oil, gas, and many mineral resources. It also has 20 million mu of sandy or uncultivated land that can be developed. As soon as there is a water supply, the Gobi Desert here will be turned into an oasis and a prosperous industrial and agricultural region. For this reason, when discussing the strategy for northwestern China's socioeconomic development in recent years, all people have been very concerned about the plan for drawing water from the south to the north in western China.

The Three Diversion Channels Are Capable of Delivering 20 Billion Cubic Meters of Water

The Huang He rises at the northern foot of the Bayan Har Shan in the eastern Qinghai-Xizang Plateau. The Chang Jiang is to its south, separated by the mountains which are high in the north and low in the south. The riverbeds of the tributaries of the Huang He are generally 300-500 meters higher than those of the tributaries of the Chang Jiang. To divert water from the Chang Jiang to the Huang He, it is necessary to build high dams among the snowy mountains and the gorges, to pump the water up the mountains, and to cut a long tunnel across the Bayan Har Shan, which is a magnificent project. This is a prominent feature of the project for diverting water from the south to the north in western China. The Chinese experts have on numerous occasions surveyed more than 30 likely places for building the key water control dam and more than 10 river sectors for diverting water in the upper reaches of the Chang Jiang and Huang He, and studied the feasibility and scope of the diversion works. Their understanding is that the geological and topographic conditions here are fairly good for the construction of key water control project and inversion channels because there is little likelihood of a strong earthquake. From more than 20 diversion plans, they selected 3 diversion channels for consideration by the state.

First, channel 10 billion cubic meters of water from Lianye in the upper reaches of the Tongtian He into the Huang He. The biggest dam in this project will be 205 meters high. This will involve a pumping range of 495 meters and an annual electricity consumption of 16.8 billion kilowatt-hours. It will be necessary to cut a 29-km-long tunnel and a 100-km-long diversion channel.

Second, channel 5 billion cubic meters of water from Renqingling in the upper reaches of the Yalong Jiang into the Huang He. The biggest dam in this project will be 302 meters high. This will involve a pumping range of 385 meters and an annual electric consumption of 6.6 billion kilowatt-hours. It will be necessary to cut a 19-km-long tunnel and a 73-km-long diversion channel.

Third, channel 5 billion cubic meters of water from Xieerga in the upper reaches of the Dadu He into the Huang He. The biggest dam in this project will be 285 meters. This will involve a pumping range of 315 meters and an annual electric consumption of 5.4 billion kilowatt-hours. It will be necessary to cut a 24-km-long tunnel and a 24-km-long diversion channel.

To channel the 20 billion cubic meters of water from the Tongtian He, Yalong Jiang, and Dadu He in the upper reaches of the Chang Jiang through the three diversion channels, it will be necessary to move 160-240 million cubic meters of stone and earth and to pour 8-17 million cubic meters of concrete. The total investment for the projects is estimated at 18.7 billion yuan, with an average investment of 0.94 yuan for diverting 1 cubic meter of water.

The experts also put forward a "self-flowing plan." This involves diverting water from the Lianye reservoir in the upper reaches of the Tongtian He toward the southwest and pouring it into Za Qu in the upper reaches of the Yalong Jiang. The water is then diverted from the Renqingling reservoir in the upper reaches of the Yalong Jiang through a 30-km-long tunnel. In this way, 15 billion cubic meters of water from the Chang Jiang will be able to flow into the Huang He. To fulfill this plan, it will be necessary to build a 401-meter-high dam and a 397 km-long diversion channel. This involves 276 million cubic meters of stone or earth work and 47.65 million cubic meters of concrete. The strong point of this plan is that water need not be pumped up, but it involves a tremendous amount of work.

To Kill Three Vultures in Northern China with an Arrow from the Chang Jiang

"A waterfront pavillion gets the moonlight first"; the plan for diverting water from the south to the north in western China will first benefit Qinghai, Gansu, Ningxia, Shaanxi, Shanxi, and Nei Monggol. If the 20 billion cubic meters of water is used to develop agriculture in northwestern China, the irrigated area there will increase by 100 percent and the irrigated farmland by 60 million mu. This will enable grain production to be raised by 20 billion jin. Seven terraced hydroelectric power stations are being built in the middle and upper reaches of the Huang He. If this water is used to increase electric energy production, the energy output will increase by 14.4 billion kilowatt-hours annually. In the long-term future, 30 terraced hydroelectric power stations will be built along the Huang He. When they are completed, the 20 billion cubic meters of water will increase generated electricity production by 105.7 billion kilowatt-hours.

The 20 billion cubic meters of clear water from the Chang Jiang will greatly increase the capacity of the Huang He to remove silt. At that time, the phrase, "one cannot wash oneself clean even if one jumps into the Huang He," should also be changed. With the various key water control projects in the Huang He jointly giving play to their regulatory functions, the lower reaches of the Huang He will be free from floods and waterlogging and a long period of prosperity will be ushered in.

Diverting water from the Chang Jiang to the Huang He at its source will also be helpful to the treatment of pollution and the development of inland navigation.

Diverting water in the upper reaches of a river has another advantage. With the region being sparsely populated and the land there practically worthless, there will be no such troublesome problems as moving out people and flooding farmland. This is something the other two plans lack.

Naturally, there are both advantages and disadvantages in everything. In order to divert water in the upper reaches of the river, we shall have to build high dams and to cut long tunnels. All the construction projects should be carried out in places high above sea level, where there is insufficient oxygen and the land is frozen. The natural conditions make it inconvenient to carry out construction projects. Moreover, numerous unknown scientific and technological factors still need to be explored.

Will diverting water from the upper reaches of the Chang Jiang affect the discharge of the Chang Jiang as a whole? Some experts estimate that the 20 billion cubic meters of water diverted from the upper reaches of the Chang Jiang accounts for only 5 percent of the discharge of the Chang Jiang of Yichang, but this will increase the discharge of the Huang He at Lanzhou by 60 percent. Taking from the rich to help the poor can do more good than harm.

The Chang Jiang is very rich in water resources and the Huang He is the lifeline of the arid region in northern China. What situation will prevail in China when the two giant rivers are joined together?

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CSO: 4006/729

HENAN RADIO ON FORMULATION OF DEVELOPMENT STRATEGY

HK070525 Zhengzhou Henan Provincial Service in Mandarin 1030 GMT 3 Feb 86

[Commentary: "Formulate Well Our Province's Strategy of Economic and Social Development"]

[Excerpts] Since the 12th Party Congress, the whole province has seriously studied and gone into the problem of the strategy of economic and social development. After hard work over the past 2 years, the provincial Economic and Social Development Strategy Planning Guidance Committee has pooled the wisdom of everyone and has an initial view on the strategy of development in the whole province. In conjunction with the realities of their own prefectures and departments, all prefectures and cities and all departments at the provincial level have put forward their own plans for the strategy of development. Gratifying progress and marked achievements have been made in the work of studying the strategy throughout the province. This is very encouraging.

However, we must also see that study and formulation of the long-term strategy of development is a new subject for us. There are many problems of which we should deepen our understanding in the course of practice. The initial plan already worked out must be constantly revised and perfected. For example, in accordance with the great national strategic target and proceeding from Henan Province's situation, when we practically and realistically work out our province's strategic target and the important steps to achieve this target, we must use the method of linking qualitative analysis with quantitative analysis, and completely expound and prove all the advantages and disadvantages of the economic and social development in our province. We must not only consider economic growth but also lay stress on the raising of economic results, modernization of the national economy, and improvement of people's livelihood. At the same time, to achieve this target, we must do it in two steps: Before 1990, we must lay stress on first investing in the industries the investment in which is small, whose period of development is short, which produce quick results, and the level whose profits is large, and on the items which promote the national economy as a whole, so as to accumulate more capital. In the second half of the strategy plan, when our capital is relatively ample, we must develop more capital and technology intensive industries and products.

In addition, in accordance with our province's current economic and technological foundation and with the essential factors of economic growth, when we determine the focal point of our province's strategy and initial industries, there are at least four conditions: 1) We must have abundant resources. 2) We must have stable and broad markets. 3) The industries are able to bring along the development of other departments and trades. 4) We can accumulate more capital for our country and localities.

We must mobilize all people throughout the province, responsible comrades of all prefectures, cities, and departments, comrades engaged in practical work, economic theory workers, and experts and scholars in all fields, pool the wisdom, absorb all useful ideas, and study in depth, so that we can formulate as soon as possible an overall plan for a strategy which conforms to Henan province's situation and which can reflect the tendencies of economic, social, scientific, and technological development, and so that we can provide a scientific basis for the provincial CPC Committee and provincial government to work out police decisions.

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LIAONING PROVINCIAL ECONOMIC WORK CONFERENCE ENDS

SK060925 Shenyang Liaoning Provincial Service in Mandarin 1030 GMT 5 Feb 86

[Text] From 31 January to 4 February, the provincial government held a provincial economic work conference in Shenyang.

During the conference, the participants conscientiously studied the relevant speeches of the central leading comrades, relayed and studied the guidelines of the National Economic Work Conference and the 2nd Plenary Session of the 6th Provincial CPC Committee, summed up and exchanged typical experiences, studied ways to improve the ideological and political work of the enterprise workers and to fulfill this year's economic tasks and measures, and commended 23 6-goods enterprises and 52 advanced enterprises that have done a good job in creating achievements in the 6 aspects.

Attending the conference were responsible comrades of the relevant provincial-level departments and of various cities in charge of economic work, and responsible comrades of 100 large and medium-sized enterprises. Chen Suzhi, member of the Standing Committee of the provincial CPC Committee, addressed the conference. Vice Governor Bai Lichen gave a summing-up speech at the conference.

Vice Governor Bai Lichen pointed out: This year, we should continue to give first priority to economic structural reform; consolidate, digest, supplement, and improve this reform with strenuous efforts; continue to vitalize large and medium-sized enterprises, and comprehensively implement a series of policies and stipulations on expanding the decisionmaking power of enterprises given by the State Council and the provincial government. No departments should set restrictions or restrict the power of enterprises. It is necessary to consolidate and sort out the existing administrative companies; exert efforts to step up macroeconomic control; strive to explore a new way to enable enterprises to be managed strictly but not over-rigidly, and to be lively but not disorderly; realistically grasp enterprise management; and actively develop the lateral economy.

Vice Governor Bai Lichen pointed out: In industrial production, we should continue to maintain a sustained, steady, and coordinated development. Developing industry at a super-high rate is not good. But this does not mean that industry should be developed at the lowest rate of 8 percent and strive to reach 10 percent if possible on the premise of raising economic results.

In his speech, Vice Governor Bai Lichen also touched on the issues of accelerating the pace of technical transformation of enterprises, raising the level of enterprises in exports and creating foreign exchange, and doing a good job in the ideological and political work among the staff members and workers of enterprises.

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ECONOMIC PLANNING

BRIEFS

WELCOMING AUDITING WORK--Auditing organs are authoritative organizations which carry out auditing and supervisory work on behalf of the state. They function as economic supervisors, economic judicial organizations, society's judges, and organizations that assess, administer, and control units. Over the past 2 years, the province's auditing organs have played an active role in safeguarding financial discipline, correcting unhealthy tendencies, and improving economic results. They have promoted smooth progress in economic structural reform. Thus various units, and departments should support and welcome this work. However, some comrades think that it is only a task meant to find trouble. They do not give enough support or even do not welcome the work. This is an erroneous attitude. It is hoped that the governments at all levels will attach great importance to and welcome the auditing work. All units and departments should also welcome the work and help the auditing organs in their work. [Station short commentary: "Support and Welcome Auditing Work"] [Text] [Xian Shaanxi Provincial Service in Mandarin 2300 GMT 3 Feb 86 HK] /12232

CSO: 4006/729

AGGREGATE ECONOMIC DATA

TIANJIN'S RURAL ECONOMIC DEVELOPMENT IN PAST 5 YEARS

SK130348 Tianjin TIANJIN RIBAO in Chinese 27 Jan 86 p 1

[Text] In 1985 our municipality witnessed an sustained and overall development in its rural economy. Compared with 1980, the total social product of the municipality's rural areas increased by 2 times; the total agricultural output value and the average per-capita net income of peasants increased by 1.2 times respectively; and the commodity rate in the rural economy increased from 68 percent to 73 percent. This indicates that the rural economy has begun embarking on a path of developing the commodity economy in a planned manner.

Last year, one of the major characteristics of our municipal rural economy was that the levels of specialization and large-scale commodity production markedly raised and the production setup as well as the structure of labor force obviously changed. In 1985, one labor force engaged in the planting industry accounted for 55 percent of the total labor force, a decline of 22 percent from 1980. In the past 5 years more than 200,000 laborers gave up planting industry and engaged in the secondary and tertiary industries. So far, the municipality as a whole has 820,000 laborers who are engaging in the secondary and tertiary industries in the rural areas, accounting for 45 percent of the total rural labor force.

The changes in the rural production setup have further met the needs of the urban and rural people and promoted the development of the commodity economy. In line with the principle of "serving the cities and making the people wealthy," the suburban districts and counties have readjusted the rural production setup and initially formed a rural economic structure which makes the suburban areas serve the large cities. Last year, under the situation in which the grain sowing acreage dropped by a large margin from 1984, we still set all-time records in the total output and per-unit area yield. The output value of forestry, animal husbandry, sideline occupations, and fishery increased at varying rates. The output of some major nonstaple foods, including eggs, mil, fish, melons and fruits, exceeded the all-time records. Viewing from the readjustment of the rural production setup, the proportion of the primary industry has dropped and that of the secondary and tertiary industries increased. Township enterprises have gradually become the important pillars of the rural economy. Last year the number of our municipality's township-level and village-level industrial enterprises reached some 8,600, showing an increase of 1.3 times over 1980. The total output value of the township enterprises is expected to reach 4.3 billion yuan, accounting for 71 percent of the total social product of the municipality's rural areas. In addition, a new tertiary industrial force has suddenly come to the fore and rapidly developed. So far, there are nearly 40,000 collective and individual commercial, catering, and service units in the rural areas. The regular individual commercial households have become an indispensable supplement to the state commercial units. According to statistics, the output value of the rural tertiary industry of the municipality is expected to increase by 3.4 times over 1980.

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AGGREGATE ECONOMIC DATA

LIAONING PUBLISHES COMMUNIQUE ON ECONOMIC, SOCIAL DEVELOPMENT

SK080751 Shenyang Liaoning Provincial Service in Mandarin 2200 GMT 6 Feb 86

[Text] The Liaoning Provincial Statistical Bureau published a communique on the national economy and social development in 1985.

In 1985 the province realized 80 billion yuan in total industrial and agricultural output value, a 13.4-percent increase over the 1984 figure. The people of various nationalities throughout the province, under the leadership of the provincial CPC Committee and the provincial People's Government, earnestly implemented the guideline on enforcing the policy of opening to the outside world in order to enliven the domestic economy, overcame the raye natural disaster by upholding the principle of putting the transformation drive in the first place, and created a favorable situation in which the national economy achieved sustained, stable, and harmonious development. The province has successfully fulfilled, in an all round way, the major targets set forth by the Sixth 5-Year Plan. On the basis of increasing output and achieving development, the province realized an increase in financial revenues and made its markets prosperous with brisk sales. The province's annual gross national product reached 49 billion yuan, a 13.4-percent increase over the 1984 figure.

In 1985 the province realized more than 65.7 billion yuan in total industrial output value, a 17.2-percent increase over the 1984 figure. The province experienced a 31.6-percent decrease in the output of grain and cotton over the 1984 figure because of the readjustment of sowed acreage and the serious natural disaster. The province, however, showed a 23.3-percent increase in the output of peanuts over the 1984 figure. There were 100 industrial products that won the national prizes for fine quality.

Along with the development of industrial and agricultural production, markets throughout the province enjoyed brisk sales and purchases. The state commercial firms and the supply and marketing cooperatives spent more than 13.2 billion yuan on purchasing commodities, a 6.8-percent increase over the 1984 figure. The province's total retail sales reached 23.1 billion yuan, a 22.2-percent increase over the 1984 figure.

On the basis of increasing output and achieving development, the province, in 1985, conducted [word indistinct] in wage systems; delegated the right to fix the prices of nonstaple foodstuffs such as meat, poultry, eggs, aquatic products, and vegetables; and gave adequate subsidies to urban residents, thus bringing about an increase, to varying degrees, in the income standard of both urban and rural people.

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AGGREGATE ECONOMIC DATA

BRIEFS

ANHUI INDUSTRIAL-AGRICULTURAL OUTPUT--Anhui's 1985 total industrial and agricultural output reached 40.8 billion yuan, an increase of 20.1 percent over 1984. The total output value of agriculture in 1985 was 18.6 billion yuan, an increase of 20.3 percent over 1984. According to a sample survey, average per capita net income of peasants in the province reached 356 yuan in 1985, an increase of 13.6 percent over 1984. The total output value of industry in 1985 was 22.2 billion yuan, an increase of 20.5 percent over 1984. The province's 1985 financial revenue passed 3 billion yuan in 1985, an increase of 23.6 percent over 1984. [Summary] [Hefei Anhui Provincial Service in Mandarin 1100 GMT 2 Feb 86 OW] /12232

HEILONGJIANG OVERFULFILLS MOST TARGETS--Our province achieved significant progress in reform of the economic structure in 1985. A good situation of vigorous development appeared in the national economy. According to statistics of the provincial Statistical Bureau, the total social product showed a 7.9-percent increase, industrial and agricultural output value a 7.3-percent increase, and national income a 5.4-percent increase over 1984. Most of the major targets as set forth in the Sixth 5-Year Plan were prefulfilled or overfulfilled. [Text] [Harbin Heilongjiang Provincial Service in Mandarin 2200 GMT 8 Feb 86 SK] /12232

GANSU'S TOWNSHIP OUTPUT VALUE--In 1985, the province's town and township enterprises achieved a gross output value of 1.69 billion yuan, an increase of 115 percent compared to 1984. The gross output value of town and township enterprises increased by 20 million yuan in 13 counties. The number of enterprises run by households increased from over 18,000 in 1984 to more than 60,000 in 1985, accounting for more than 60 percent of the province's total number of town and township enterprises. Through various channels, the province imported over 2,400 qualified personnel and trained some 9,000 people. [Summary] [Lanzou Gansu Provincial Service in Mandarin 1100 GMT 9 Feb 86 HK] /12232

CSO: 4006/729

COOPERATION DRIVE BREAKS OLD TRADE BARRIERS

OW130840 Beijing XINHUA in English 0709 GMT 13 Feb 86

[Text] Beijing, 13 February (XINHUA) -- The long-standing obstacles hampering China's economic development are being further removed as the drive towards more co-operation between firms shifts into second gear, CHINA DAILY reported today.

The government is formulating policies and drafting regulations to promote a "horizontal co-operation" that cuts through the administrative barriers and encourages businesses to work out ways of helping each other.

This new thinking opposes the idea of "vertical control" that prevailed under the old central planning system, when most manufactured goods could be sold only in the area where they were made and firms and factories could deal only with the government departments to which they belonged.

A national conference will be held shortly in Beijing to draw up a strategy for solving any problems that may arise under the new system, Sun Shuyi, a director of the state economic commission, told CHINA DAILY.

According to Sun, the movement is gaining momentum as a result of the fundamental shift toward giving businesses more independence by freeing them from highly centralized control.

Such co-operation now exists not only between enterprises in different regions and under different government departments, but also between urban and rural firms, industrial, commercial and foreign traders and defense and civilian industries.

Nationwide co-operation in production, technology, personnel, materials and funds and pooled efforts in research and marketing, are vitally important for developing the market economy and setting up economic networks, the director said.

The change in direction began in 1980 with encouragement from the state council, which urged that artificial barriers to domestic trade be broken down to free the country from the "closed door" policy restrictions that had evolved over the years.

Sun said that more than 35,000 inter-province economic and technical co-operation contracts had been signed so far, ranging from one-off single project deals to long-term arrangements for co-ordinated production.

All these deals were entirely voluntary and made on mutually beneficial terms, Sun said. Each arrangement was made on the understanding that each partner's ownership rights, responsibilities to higher authorities and methods of paying taxes would not be changed.

Wang Lemei, a bureau chief at the State Economic Commission, told CHINA DAILY that the new approach had also resulted in the formation of more than 10 new large enterprise groups producing vehicles, iron and steel products, electrical goods and chemicals.

Sun Shuyi said that more and more Chinese enterprises had come to realize that economic and technical co-operation was necessary for keeping up with market changes and for speeding technological progress. Co-operation could unite the strong points of many businesses to bring the best economic and social results.

The "horizontal" policy has proved successful in many ways, co-ordinating mass production of brand-name goods, promoting the exchange of technology and economic information, bringing together processing industries and raw material suppliers, and helping the country's industries in remote land-locked provinces and rural areas to make industrial progress for forging economic links with more developed provinces and coastal cities.

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CSO: 4020/203

ECONOMIC MANAGEMENT

SCIENTIFIC RESEARCH, PRODUCTION WORK TOGETHER

OW131206 Beijing XINHUA in English 1137 GMT 13 Feb 86

[Text] Beijing, 13 February (XINHUA) -- China's bustling market in new technology last year benefited small production firms all over the country.

Researchers have been told to work closer with industry as part of the country's efforts to reform its science research system. Research findings are now being applied practically to boost the economy.

Last May, China's first national technical trade fair was held in Beijing. More than 20,000 research findings were offered for sale to industry.

Many other local authorities followed suit by organizing technology fairs or opening technology markets or shops. At a fair held in Hangzhou, capital of East China's Zhejiang Province, more than 3,200 research findings were transferred to production units.

Other agreements at the fair, involving technological consultation, contracting for key projects, technical bidding or providing technical services, were reached between research institutes and small firms and rural enterprises.

China now has more than six million rural enterprises, which badly need new technology to expand production and improve product quality.

At a fair last spring, the Beijing food research institute signed contracts for transferring technology for processing corn and sweet potatoes with 110 customers. It earned transfer fees of 2.7 million yuan.

Figures released recently by the state science and technology commission show that overall, research institutes earned 1.77 billion yuan from transferring technology to small and rural enterprises last year.

Incomplete statistics show that China has so far established 1,100 scientific development exchange centers and more than 3,000 technical consulting service organizations.

Last March, the Communist Party Central Committee said it aimed to reform the science research system to make it better-suited to serving the national economy.

The reform involves changing the method of financing scientific research, opening technology trade fairs, increasing the technology development ability of enterprises and reforming the scientific management system.

The Central Committee stipulated that operating funds for institutes working on technological development would be gradually withdrawn, making them become financial self-supporting. Those working on basic research would have to apply for grants from the science foundation, while the state continued to guarantee funding only for their operating expenses.

Last year, about 1,900 institutes for technological development, accounting for 40 percent of such institutes in the country, signed technical contracts, and 360 institutes became financially self-supporting.

The state science and technology commission said institutes above the prefectural level last year earned a combined income of 900 million yuan through transferring their research findings or providing technical services -- equivalent to about 47 percent of their operating costs.

By the end of 1985, China had set up 9,768 research-production co-operatives across the country, nearly four times the figure in 1984. Institutes and enterprises joined hands in developing new products or new industries.

For instance, the Shanghai branch of the Chinese Academy of Sciences has established more than 60 research-production co-operatives with rural enterprises.

The branch's silicate research institute has applied eight research findings and seven items of technology to the Deqing electronic equipment factory in Zhejiang Province for the production of niobium-lithium crystals. The co-operation last year helped the factory produce an output value of five million yuan and a profit of one million yuan. The factory now produces two-thirds of such crystals sold in China.

Scientific reform has also mobilized the initiative of the scientific workers, and promoted the flow of scientific personnel between cities and the countryside. County and township enterprises earned a net increase of 1,356 scientific workers last year.

The state science and technology commission said that last year, more than 10,000 major research findings won official technical approval and received awards. Of these, 185 research findings which won national invention awards produced economic returns of 4.4 billion yuan.

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ECONOMIC MANAGEMENT

STATE COMMISSION PRAISES RESEARCH SALES

OW131641 Beijing XINHUA in English 1626 GMT 13 Feb 86

[Text] Beijing, 13 February (XINHUA) -- The policy of allowing paid transfers of research results has proved to be a success, the state science and technology commission said today.

Research institutes have begun selling their findings under the new policy, enabling them to contribute further to the country's development, the commission reported.

Such sales amounted to 1.77 billion yuan (about 500 million U.S. dollars) last year; most buyers were middle and small enterprises in cities, and rural factories.

It used to be difficult for these units to get help from scientists in the past, when research tasks were assigned and findings controlled exclusively by the government.

In 1985 over 40 percent of the research institutes operating under city and higher authorities contracted items of research, the commission reported.

The total earnings came to 900 million yuan, equivalent to 46 percent of the funds the state provided to the research institutes.

By the end of last year, the commission said, the number of cooperative units combining research with production has snowballed to 9,700, nearly five times the 1984 figure.

These units were set up by factories and research institutes, including 778 research units operating under ministries and commissions under the state council.

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CSO: 4020/203

ECONOMIC MANAGEMENT

SCIENCE ASSOCIATION ON PROMOTION OF LOCAL ECONOMY

OW171626 Beijing XINHUA in English 1514 GMT 17 Feb 86

[Text] Beijing, 17 February (XINHUA) -- The China Association for Science and Technology urged its societies across the country to play a greater role in promoting local economy and popularize suitable technology to rural enterprises.

The call was made at the association's standing committee meeting here today.

As a mass scientific organization, the China Association for Science and Technology has a total of 138 societies nationwide, with a membership of more than 1.5 million.

Zhou Peiyuan, president of the association, said that there are now over 60,00 specialized technology research groups in the countryside. They should promote techniques for crop cultivation, fish breeding and animal raising as well as the application of technical know-how to the rural areas and township enterprises, he said.

During the seventh five-year plan period (1986-1990), the association will help 200 million rural youths and cadres to master one item of technology suited to local conditions; at the same time, it will, in cooperation of the civil affairs departments, assist 15 underdeveloped counties in developing commodity production.

The association in 1986 will complete the construction of 14 scientific activity centers for youngsters with the financial help from the U.N. Children's Fund and conduct scientific activities among the children in the fields of computer science and biotechnology.

This summer, it will sponsor the third national creation and invention contest for youngsters in Lanzhou, capital of northwest China's Gansu Province.

In addition, the association will sponsor lectures on new technology, modern management and new industries for scientific work.

More than 30 international academic symposiums are planned in Beijing to expand exchanges with scientific organizations in other countries, especially the international scientific union and the world engineers' union. Chinese technicians will be sent to foreign enterprises to learn production techniques and management expertise.

According to the standing committee meeting, the China Science and Technology Association will convene its third national congress this year to revise its constitution and reshuffle its leading body, making the association's work more effectively serve the country's seventh five-year plan.

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CSO: 4020/203

BRIEFS

INDUSTRIAL DEVELOPMENT INVESTIGATED--Over 1 and 1/2 pages, ZHONGGUO JIXIE BAO [CHINA MACHINE BUILDING JOURNAL] carried an article by Comrade Ni Zhifu on investigation and study of the issue of basic technology, materials, equipment, and parts in the machine-building and electronics industries. The article set out six relationships between basic and other links, which should be handled well in industrial development. 1) To raise the level of finished products, it is necessary to proceed from the enhancement of the level of basic links; 2) to carry out technological reform, it is necessary to emphasize the strengthening of basic links; 3) to import and absorb advanced foreign technology, it is necessary to grasp the work of solving basic link problems well; 4) to strengthen those links, it is necessary to emphasize specialization, cooperation, and joint activities; 5) to develop new industries, it is necessary to start with basics; and 6) to promote modernized management, it is imperative to strengthen basic work. [Report in 13 February Press Review on Ni Zhifu's article] [Text] [Beijing Domestic Service in Mandarin 2230 GMT 12 Feb 86 OW] /12913

LATERAL ECONOMIC TIES--Lateral economic ties, which have developed in recent years, have become an important part of, and given new vitality to, the province's economic development. In 1985, lateral economic ties in the province expanded more rapidly than in previous years, achieving more remarkable results than before. The province signed contracts with 25 provinces, autonomous regions, and cities on more than 1,400 cooperative projects, and brought in some 350 million yuan. [words indistinct] The province's output value and achieved profits and taxes in these economic cooperation projects increased nearly 100 percent over 1984. Under the situation in which the state tightened money supply, in 1985 the province brought in funds from other provinces to promote exploitation of natural resources. Dayong city brought in some 32 million yuan to speed up the development of (Wulingyuan) tourism area. Loudi Prefecture brought in some 35 million yuan to develop production of building materials and pig iron. Bringing in advanced technology and management experience has given vitality to some enterprises in the province. The Jishou leather products factory stopped production in 1984 due to poor management. After consolidation and bringing in technology and management experience from Shanghai, the factory survived and the profits and taxes achieved by it in 1985 amounted to some 350,000 yuan. [Text] [Changsha Hunan Provincial Service in Mandarin 1100 GMT 3 Feb 86 HK] /12913

PRICE MONITORING STATIONS--Beijing, 5 February (XINHUA)--China has set up more than 4,000 price monitoring stations in towns and cities, according to the overseas edition of today's "PEOPLE'S DAILY." The newspaper reported that 20,000 volunteer price monitoring workers have played an active role in protecting the interests of consumers in many of China's larger cities including Shenyang, Jilin, Chongqing, Guangzhou and Wuhan. Spring festival or lunar new year, which falls on 9 February, is the busiest commercial season of the year. The state price control administration has put out a nationwide call for extra vigilance among price control workers and expansion of the monitoring system. [Text] [Beijing XINHUA in English 1303 GMT 5 Feb 86 OW]

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CSO: 4020/203

FINANCE AND BANKING

JINGJI CANKAO CITED ON ISSUING INTERNATIONAL BONDS

HK290000 Beijing ZHONGGUO XINWEN SHE in Chinese 0800 GMT 25 Nov 85

[Text] Beijing, 25 November (ZHONGGUO XINWEN SHE)--The latest issue of JINGJI CANKAO published here today carries an article, which says that issuing international bonds is a feasible way to raise foreign exchange funds, and this can be taken as the main method of raising funds during the Seventh 5-Year Plan (1936-1990).

The article says: At present, China can raise foreign exchange funds mainly through such channels as government loans, loans offered by international monetary organizations, export credit, bank loans, and the issuance of bonds. However, we are not in an active position when raising funds through some of the above-mentioned channels. For example, there are often some limits when contracting loans with the World Bank or with some foreign governments. Issuing bonds is a quite different channel with many special advantages. When there is a debt crisis creditors cannot transfer and sell their loans; however, if necessary, the holders of bonds can sell the bonds at any time. In recent years, some western countries have relaxed their restrictions on the issuance of bonds.

Since 1982, China has issued a number of kinds of bonds on the international bond markets in Japan and West Germany, and has accumulated a certain experience in this regard. When issuing bonds in Japan, the Bank of China was given a rating of AAA and the China International Trust and Investment company was rated AA. China's reputation on the international bond markets is very good. This year, China also issued Deutsche mark bonds in the Frankfurt international market and the investors vied with each other in buying the bonds issued by China. The authors of this article are two experts of Shanghai Finance and Economics College. They put forward four principles for issuing bonds on the international market:

First, the channel for issuing bonds should be diversified. So far, China has issued bonds just in two of the four major international bond markets, that is the Japanese yen bond market in Japan and the Deutsche mark bond market in West Germany. Henceforth, we should create conditions to enter the other two major markets--the U.S. dollar bond market in the United States and the Swiss franc bond market. In addition, we may try to issue some bonds on less important international bond markets, such as bonds denominated in Canadian dollars, Australian dollars, and French francs.

Second, the forms of bonds should be more diverse. So far, the bonds we have issued are all bonds with fixed interest rates. The lack of diversity of our bonds will not be favorable to attracting investors. Henceforth, we should consider the issuance of bonds with floating interest rates or bonds without interest. We may also issue large amounts of certificates of deposits.

Third, we should issue bonds denominated in various currencies. Now we have issued bonds denominated in the Japanese yen, the Deutcshe mark, the U.S. dollar, and the Hong Kong dollar. Henceforth, we should consider the issuance of bonds denominated in other currencies so as to reduce the risks caused by the changes in exchange rates.

Fourth, more units in China should act as bond issuers. So far, only three units, namely, the Bank of China, the China International Trust and Investment Company, and the Fujian Investment Enterprise Company, have issued bonds on the international markets. Henceforth, more units should participate in issuing bonds. For example, the Guangdong Investment and Trust Company, the Shanghai Investment and Trust Company, and other specialized banks, as long as they have the conditions, could all issue bonds on overseas markets.

Recently, Wang Deyan, president of the Bank of China, required various overseas banking institutions to adopt diverse channels and forms to raise foreign exchange funds.

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CSO: 4006/737

FINANCE AND BANKING

SHANDONG FINANCIAL WORK CONFERENCE SETS TASKS

SK310912 Jinan Shandong Provincial Service in Mandarin 2300 GMT 30 Jan 86

[Excerpt] The provincial financial work conference, which ended in Jinan on 30 January, set forth the following emphasis for provincial financial work in 1986: We should ensure the fulfillment or overfulfillment of the annual financial revenue task and strike a balance between revenue and expenditures by supporting reform, promoting production, and improving social and economic efficiency.

The conference maintained that thanks to the implementation of the party principle of opening up to the outside world and invigorating the domestic economy, our province has witnessed an increasingly better situation in the economy and finances, and has created a new situation in which revenues have increased steadily, deficites have declined year after year, reserve financial resources have increased, and the progressive decline in expenditures has been stopped. In 1985, on the basis of effecting a 22.87 percent increase in revenue, the distribution of revenue has basically ensured the needs of develop reform and various other undertakings. Budgeted expenses in the cultural, educational, scientific, and public health undertakings increased from 600 million yuan in 1978 to 1.6 billion yuan in 1985, and the expenses in maintaining public facilities in the urban areas increased by more than 900 percent. Meanwhile, revenue distribution has become rational.

The conference stressed: Although we have effected a turn for the better in the financial situation, we must note that the contradiction between the supply and demand of funds is still very conspicuous. To fulfill the annual financial budget task, the provincial financial work must aim to promoting the reforms in all fields, increasing economic results, and striking a balance between revenue and expenditure. From now on we should pay attention to increasing revenue and economizing on expenditures, and in particular should attend to the following three tasks for increasing revenue:

1. We should formulate plans for giving appropriate preferential treatment in the fields of the financial system, policies, funds and routine work to the 50 poverty-stricken counties whose income falls short of expenditures in order to help them bring about an upswing in their economy in a relatively short period of time.

2. We should gradually establish township financial departments in towns and townships where possible, in order to fully mobilize the enthusiasm of towns and townships for increasing revenue and economizing on expenditure.

3. We should continually encourage institutions to turn themselves into enterprises, further strengthen the financial work of enterprises, urge enterprises and institutions to increase economic results, and lay a good foundation for fulfilling or overfulfilling the 1986 revenue task and striking a balance between revenue and expenditure.

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CSO: 4006/737

FINANCE AND BANKING

SHENYANG BANKING REFORMS BOOST BUSINESSES

OW070739 Beijing XINHUA in English 0647 GMT 7 Feb 86

[Text] Shenyang, 7 February (XINHUA) -- Banking reforms being pioneered by this Liaoning provincial capital are benefiting small and large businesses alike, a banking official said here today.

Credit co-operatives to aid mainly small businesses have sprung up all over Shenyang, north-east China's main center for heavy industry, since it became one of five cities to pilot the reforms in 1984.

Up to the end of last year, 17 urban and 104 rural credit co-operatives had opened. They have sole responsibility for their profits and losses.

These cooperatives have savings deposits totalling 81 million yuan, and more than 6,200 small businesses have opened accounts with them.

Credit granted by them helps boost collective and individual businesses, which had difficulty in borrowing funds for development in the past.

The restructuring of the banking system will play a vital part in the progress of the country's overall economic reforms in the next five years, the official said.

With the approval of the People's Bank of China, Shenyang has set up three trust and investment companies, which offer a range of commercial credit, leasing, insurance and consultancy services, and supplement state banking facilities.

Aided by the Shenyang branch of the People's Bank of China, the Shenyang air compressor factory has entered into economic and technical co-operation with 12 provinces in the form of trade credit.

The trust and investment company of the Shenyang industrial and commercial bank has lent 25 million yuan to 56 enterprises, and leased them production lines, vehicles and other equipment, which will boost their total output value by 72 million yuan a year.

Approved by the bank authorities, 68 businesses in the city have issued bonds worth 140 million yuan to their employees as well as the public in the past year.

Money raised by the bonds will be used to improve older city districts, build homes and modernize industry. The bonds generally run for periods of between six months and five years.

The Shenyang cable plant has transformed two production lines with 20 million yuan raised by itself. When the production lines go into operation, they should boost output value by 50 million yuan a year, and profit by 15 million yuan.

According to the official, urban savings deposits last year amounted to 1.84 billion yuan -- 500 million yuan more than in 1984, and an average of 559 yuan per person.

Other cities piloting the banking reforms are Guangzhou, capital of Guangdong Province, Wuhan, capital of Hubei Province, Chongqing in Sichuan Province and Changzhou in Jiangsu Province.

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CSO: 4020/203

FINANCE AND BANKING

BRIEFS

SHANGHAI PORT NONTRADE EARNINGS--Shanghai Port's nontrade foreign exchange earnings in 1985 reached in excess of U.S. $500 million, accounting for 13 percent of the port's total foreign exchange income. The increase in this category of foreign exchange income has been the result of all kinds of good services rendered by Shanghai's various transportation businesses. [Summary] [Shanghai JIEFANG RIBAO in Chinese 23 Jan 86 p 1 OW] /12913

SHANGHAI INCOME TAX--Shanghai, 5 January (XINHUA)--Shanghai Municipality collected a record 1.3 million yuan of personal income tax in 1985. This was nine times more than the amount collected in the preceding year. [Summary] [Beijing XINHUA Domestic Service in Chinese 1157 GMT 5 Jan 86 OW] /12913

ZHEJIANG SAVINGS DEPOSITS--Savings deposits in Zhejiang banks increased by 3.1 million yuan in 1985. Average per capita savings deposit increased from 124 yuan at the beginning of the year to 168 yuan at the year-end. Bank loans decreased by 1.3 billion yuan in 1985 as cmpared with 1984, basically fulfilling state control on credit. [Summary] [Hangzhou Zhejiang Provincial Service in Mandarin 1000 GMT 6 Feb 86 OW] /12913

STATE TREASURY BONDS--According to information provided by the office of the Central State Treasury Bond Promotion Committee, this year's task for issuance of State Treasury Bonds has been overfulfilled. By the end of November, 6.47 billion yuan worth of State Treasury Bonds had been sold, exceeding the plan by 0.8 percent. State Treasury Bonds purchased by units totalled 2.197 billion yuan, whereas urban and rural people bought a total of 3.85 billion yuan worth. [Summary] [Beijing XINHUA Domestic Service in Chinese 0138 GMT 25 Dec 85 OW] /12913

BEIJING TAX REVENUE--In 1985, Beijing Municipality handed over 5.341 billion yuan in industrial and commercial taxes into the state treasury, exceeding the annual plan by 1.12 billion yuan, and showing an increase of 28.3 percent over 1984 if calculated in terms of comparable items. In 1985, the municipality as a whole organized tax checkups among more than 90,000 enterprises, and returned 420 million yuan in uncovered tax evasion and his propriation of funds for developing energy and communications projects to the state treasury. [Summary] [Beijing BEIJING RIBAO in Chinese 26 Jan 86 p 1 SK] /12913

DECISION ON DEFICITS--Decision of the Standing Committee of the Fujian Provincial People's Congress on Eliminating Financial Deficits

for 1985 and 1986. (Adopted by the 17th Session of the Standing Committee of the 6th Provincial People's Congress on 29 January 1986). Fujian Province achieved comparatively good results in its financial work in 1985. In accordance with the guidelines of the National Conference of Party Delegates and a relevant circular recently issued by the central authorities, the following decision is hereby adopted: 1. Revenues in excess of the budget at various levels for 1985 must first be used to make up for the deficits. The final accounts must not list the expenditures first and leave behind the deficits. 2. Financial budgets for 1986 at various levels must balance revenue and expenditure for the year with some surplus and no deficits. [Text] [Fuzhou FUJIAN RIBAO in Chinese 30 January 86 p 1 OW] /12913

OVERSEAS BANK BRANCHES--Beijing, 4 Feb (XINHUA)--The number of permanent overseas banking offices in China rose to 159 by the end of 1985, as compared with 63.3 years ago, according to the "ECONOMIC DAILY." The offices are operated by 79 banks and 16 companies dealing in insurance or bonds from 23 countries and regions, and are situated in major cities all over China. Since April 1985, the People's Bank of China has given 11 overseas Chinese and foreign banks and Chinese banks registered in Hong Kong permission to open branches in the Shenzhen, Shekou, Xiamen and Zhuhai special economic zones. [Text] [Beijing XINHUA in English 1458 GMT 4 Feb 86 OW]

POSTAL BANKING SERVICES BEGIN--Beijing, 31 January (XINHUA)--Postal banking services will begin in 12 Chinese cities Saturday, an official of the Ministry of Posts and Telecommunications said here today. The new deposit service will make it easier for people to save as well as generate new funds for state construction projects, the official said. "Post offices are in many more places than banks." Deposits will be accepted only for individual accounts, and interest rates will equal those of banks. Cities involved include Beijing, Shanghai, Tianjin, Zhengzhou, Shenyang, Shijiazhuang, Chengdu, Xian, Nanjing, Guangzhou, Fuzhou and Changsha. [Text] [Beijing XINHUA in English 1633 GMT 31 Jan 86 OW]

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MINERAL RESOURCES

BRIEFS

JIANGXI MINERAL RESOURCES--Jiangxi's geological and mineral departments made breakthroughs in mineral prospecting during the Sixth 5-Year Plan. About 8 million tons of rare earth metal deposits and an estimated deposit of 280 billion tons of limestone were discovered during that period. [Summary] [Nanchang Jiangxi Provincial Service in Mandarin 1100 GMT 5 Feb 86 OW] /12232

CSO: 4006/728

INDUSTRY

INVESTMENTS IN BUILDING MATERIALS INDUSTRY

OW070628 Beijing XINHUA Domestic Service in Chinese 0211 GMT 7 Feb 86

[By reporter Ge Daxing]

[Excerpts] Beijing, 7 February (XINHUA)--In recent years, China's building materials industry has kept its long-term interests in mind by significantly increasing its investments in education, whipping up the enthusiasm of the relevant departments in running schools, and laying a reliable foundation of manpower and intellectual resources for the building materials industry.

In order to keep pace with the rapidly developing economy and technology in the world, China's building materials industry needs large number of skilled people. At the same time, many areas, departments, and enterprises where building materials are manufactured also badly need manpower and seek to tap intellectual resources. The building materials departments in various localities that are experiencing difficulties in meeting the needs in this regard have increased their educational appropriations each year. The educational fund for 1985 reached 13 million yuan. More than 23 million yuan have been raised this year. In 1985, 4 percent of the capital construction investments managed by the State Administration of Building Materials Industry was used in manpower development. According to a plan, this percentage will gradually rise to 8 percent during the "Seventh 5-Year Plan." Most of the 27 secondary and vocational middle schools, 50 some technical schools, and 11 workers universities have been newly built in various localities in the last several years.

How can we train more and better qualified people with the help of all departments concerned? This has become an extremely important theme among the leaders in the building materials departments that badly need competent people. After summing up their experience in developing education for the building materials industry, they have gradually worked out a set of effective methods of running and managing schools at various levels. They have changed the practice of monopolizing the training of qualified people and their job assignments into a system of mobilizing various building materials departments, localities, and enterprises in setting up schools. The main points are as follows:

Primary education for the workers in the building material industry should be given by the enterprises themselves. Secondary education for the workers should be given by the local authorities and the enterprises. Secondary and vocational middle schools, technical schools, and institutes of vocational education should be organized by the building materials departments in various provinces, municipalities, and autonomous regions and various localities. Higher education for workers and cadres should be given by the State Administration of Building Materials Industry and the departments in various localities in charge of developing building materials. The institutes of higher learning in building materials should be managed by the State Administration of Building Materials Industry. Vocational courses on building materials offered by various departments and local institutes of higher learning should be given support by the state and local building materials departments.

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CSO: 4006/719

INDUSTRY

HUNAN SCORES SUCCESS IN ORDINANCE INDUSTRY TRANSFORMATION

HK111450 Changsha Hunan Provincial Service in Mandarin 1100 GMT 9 Feb 86

[Text] During the Sixth 5-Year Plan period, following the principle of attaining good variety, good quality, and a good level, and raising economic effectiveness, our province's ordnance enterprises carried out technological transformation. Of the 91 planned technological transformation projects, 86 have been completed and put into production, accounting for an increase of 130 million yuan in output value and increasing profits delivered to the state by 20 million yuan. These technological transformation projects have not only strengthened ordnance enterprises' capability to meet changes and to develop themselves, but have also promoted the development of products for civilian use. Over the last 5 years, the whole system developed a total of over 50 kinds of products for civilian use, such as bicycles, cylinders, and more. Of these, 39 have been put into mass production and 2 have entered the international markets. Making an investment of 14 million yuan together with eight other units to renew workshops and technologically transform equipment, the Jianghua Engineering Plant succeeded in manfuacturing Conghe brand bicycles. At present, it can produce half a million bicycles a year and its products have developed from 1 to 4 varieites and 8 models and are selling well in 25 provinces and cities across the country. Last year it delivered profits to the state of 9 million yuan. The success of these technological transformation projects has also helped upgrade product quality. During the Sixth 5-Year Plan period, two products produced by our province's ordnance enterprises were awarded national silver medals and nine were selected as provincial top-quality products. The stability rate of product quality generally reaches over 97 percent, of which the proportion of top-quality products accounts for 40 percent.

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CSO: 4006/719

INDUSTRY

BRIEFS

ZHEJIANG INDUSTRIAL OUTPUT--During the Sixth 5-Year Plan period, Zhejiang's industrial departments prefulfilled or overfulfilled all major production targets. Over the past 5 years, the province's total industrial output value increased at an average annual rate of 18.6 percent. Village and town industries developed rapidly during that period. Output of consumer items, particularly washing machines, refrigerators, television sets, bicycles, and other durable items, increased at a much faster pace that other products. [Summary] [Hangzhou Zhejiang Provincial Service in Mandarin 1000 GMT 8 Feb 86 OW] /12232

ZHEJIANG LIGHT INDUSTRY--By importing technology and equipment from abroad and carrying out technological innovation of existing enterprises, Zhejiang's light and textile industries rapidly increased production and improved economic results during the Sixth 5-Year Plan period. Over the past 5 years, the province's total light and textile industrial output value increased at an average annual rate of 14.8 percent. Total taxes turned into the state and profits earned during the period nearly doubled that in the Fifth 5-Year Plan period. [Summary] [Hangzhou Zhejiang Provincial Service in Mandarin 1000 GMT 9 Feb 86 OW] /12232

CSO: 4006/719

FOREIGN TRADE AND INVESTMENT

LONG-TERM STRATEGY FOR TUNGSTEN EXPORT

Beijing GUOJI MAOYI WENTI [INTERNATIONAL TRADE JOURNAL] in Chinese No 5, Sep-Oct 85 pp 39-43, 60

[Article by Cui Yue [1505 1471]: "China's Tungsten Export Needs a Long-term Strategy"]

[Excerpt] II. Problems in China's Tungsten Export

1. Absence of an Effective Resource Protection System: China's "Provisional Regulations for Mineral Resource Protection," promulgated in the 1950's, mentions in general terms the state ownership of mineral resources but does not lay down any specific and feasible protective measures. In practice, relevant government departments have not really adopted legal, economic or administrative mechanisms to protect tungsten resources so that a good deal of this valuable asset has been damaged. For example, following the decentralization of the power to export tungsten ore in 1981, many localities purchased it in vast quantities and exported it at low prices. Many mining enterprises are run by counties, communes and brigades, even individuals. Their recovery rate ranges only from 50 to 60 percent, far lower than the 85 percent in state tungsten mines.

2. Enterprises Are Allowed to Exploit Tungsten at Little or No Cost: The cost of Chinese tungsten sold abroad is much lower than that of similar foreign products. One reason is that in China, mining units in most cases can use the resources without having to pay for them. Even in 1982-83 when tungsten prices hit an all-time low in the international market, China's tungsten ore exports still reaped exceedingly high profits. This not only encourages excessive indiscriminate mining at home, but also contributes to a tungsten glut on the world market, depressing prices.

3. China's Export Management Policy Lacks a Scientific Basis: There have been two mistakes in the way we have managed our tungsten export. First, by allowing units to export tungsten on their own, we unleashed a flood of Chinese tungsten on the world market and tungsten prices took a tumble. Second, because of fragmentation, the prices of tungsten products at different levels were uncoordinated. At one point the prices of semifinished tungsten products dropped below those of raw tungsten. Experience shows that we must centralize the export management of a product like tungsten with its special nature and position and establish a comprehensive coordinated management system.

4. Production Is Divorced from Export: Chinese tungsten has two markets: a relatively stable domestic market and a constantly fluctuating international market. The export planning model traditionally in use in China is: domestic output - domestic consumption = China's export. This model ignores a key variable: China's export = international market demand for Chinese tungsten. Consequently, the export sector became a luckless buffer zone between the relatively stable domestic market and the cyclically unstable international market. In 1977, for example, both domestic and international demand rose sharply and the foreign trade sector was hard pressed to supply enough tungsten, so it turned to small local tungsten mines and painstakingly nurtured their growth. Soon, restructuring of the domestic economy was under way across the board, the capitalist world slid into another recession in 1980, and demand for tungsten dropped precipitously at home and abroad. The foreign trade sector, burdened with a large stock of the mineral, had no choice but to export it by slashing prices.

5. Irrational Tungsten Export Mix and Backward Quality Standards: Tungsten products can be divided into raw materials, semifinished products, and finished products, depending upon the degree of processing involved. Assuming their tungsten contents are identical, hard metal (finished product) costs four times as much as tungsten ore (raw material). But 80 percent of China's tungsten exports consists of raw materials, 20 percent are semifinished products, and there are hardly any finished products. Moreover, the quality of our tungsten products is relatively backward. Hard alloy made by advanced nations fetches two to three times as much as China's. As for quality standards, our inability to meet certain foreign substance content standards long in effect overseas also has an adverse impact on our tungsten export and prices.

6. Irrational Export Focus: Chinese tungsten exporting has gone through three stages (see Table 2). Given the distribution of the world's major consuming nations, our tungsten export focus for the past 10 years or so seems to be sensible. Actually, however, most of our exports to Western Europe are transit goods which finally end up in the Soviet Union, and Eastern Europe. Therefore, these countries remain the major consumer markets for our tungsten exports (and buy up 80 percent of them). This shows that, first, our export relies heavily on middlemen and has failed to establish extensive relations with the real consumers and, second, we have yet to open up the Western European, U.S. and Japanese markets.

Table 2. Tungsten Export Focus (In percentages)

Export focus	1950-60	1961-71	1972-82
USSR, Eastern Europe	100	63	38
Capitalist nations	0	37	62
Total	100	100	100

7. Inability To Control International Market Prices: As the world's top tungsten exporter, China exercises a tremendous influence on the world tungsten market. For years, however, our policy has been dictated by a concern for quantity, ignoring prices. Seldom do we take the initiave to influence or control tungsten prices internationally. Since tungsten ore is a primary product, both its demand and prices are highly sensitive to changes in the world economic scene. Because of violent price fluctuations, tungsten exports have been an exceedingly unstable source of foreign exchange despite the fact that quantitatively our tungsten ore exports have changed little from year to year in recent times.

III. Need For Long-Term Export Strategy and Its Substance

Tungsten being a strategic material, we must consider its strategic implications as well as its economic value. We must take into account its long-term economic significance as well as making it serve the current national economic drive. Hence we should be guided by a correct strategic ideology as we seek to protect, research, exploit, and develop this mineral.

Exporting represents a major way of exploiting tungsten. But never have we formulated and implemented an effective tungsten export strategy. Among the consequences of this failure are the irrational development and exploitation, even destruction, of a precious resource; the failure to effectively control international prices, which destabilizes our foreign exchange income; and losses for the state, with profits accruing to other nations. It is thus evident that the formulation of a scientific, rational, feasible and practical long-term strategy is in line with the needs of national economic development and basic national interests. Substantively such a strategy should include the following aspects:

1. Resource Protection: This is a prerequisite for ensuring the rational exploitation of tungsten resources. We must take a three-pronged approach toward resource protection. Legally, we should draw up a resource protection law to ensure the state's effective ownership over national resources and the rationality of resource exploitation, and stipulate severe penalties for individuals or units who damage resources. Economically, we should apply the law of value, encourage enterprises' to increase their tungsten efficiency, and prohibit the mining of tungsten resources without cost. Administratively, we should set up a strong government agency to resource exploitation and investigate the feasibility of exploitation plans, and examine and approve them.

2. Resource Exploitation Planning: Resource exploitation planning includes the long-, medium- and short-term planning of the prospecting, protection, exploitation, technological development and commercial utilization of resources. It must be consistent with the overall national economic plan, the 5-Year Plan, and the annual plan of which it forms a vital part. In drawing up a resource exploitation plan, we must consider both its economic significance over the long haul and the security interests of the state.

The importance of resource planning lies in providing our plethora of specific policies, principles and plans with an explicit scientific bases, avoiding irrational exploitation and coordinating the policies and schemes of different sectors (prospecting, production, research and export, etc.)

3. Export Management Policy: The question here is "centralized management" versus "decentralized management." A basic tenet of China's current economic system restructuring is the decentralization of managerial power to foster competition among enterprises in the same trade and hence improve economic results. Tungsten export, (along with the export of other commodities), however, cannot be governed by this idea for the following reasons. First, there is such a wide gap between the costs of domestic and foreign tungsten that tungsten-producing enterprises can make a handsome profit in the international market without really trying, so they have little incentive to improve production technology, upgrade management standards and further trim costs. Second, Chinese tungsten makes up a substantial portion of total world tungsten exports. If our own tungsten-producing units compete against one another in the world market, we will easily create an oversupply and drive down prices. Third, the inevitable result of such competition will be excessive indiscriminate mining at home, damaging the nation's resources.

4. Coordination Between Production and Sales and Strategic Reserve: China's tungsten export is conditioned by two different markets. On the supply side, it is conditioned by a relatively stable domestic planned economy; on the demand side, by a cyclical capitalist market. We manage the production-sales relations in accordance with the model, "output - domestic sales = export," and the result is any one of the four scenarios presented in Table 3. Whatever the scenario, the foreign trade sector invariably comes under intense pressure either because it cannot keep up with demand or because it is saddled with excess stocks.

Table 3. Export Scenarios Resulting from Fluctuating Demand

	Foreign demand rises, prices soar	Foreign demand drops, prices fall
Production adjusted	Expanding production capacity may increase income, but once damand sags, excess production capacity results	Reducing production capacity may prevent a sharp price drop, but once demand bounces back, cannot produce enough to meet demand
Production not adjusted	Good export opportunities may be lost	Dump mineral abroad at low prices, which may cause prices to drop further, or let foreign trade sector run up huge inventory

A better way to address this problem will be to build up a national strategic material reserve (not to be confined to tungsten,) thereby replacing the "output - domestic sales = export" model with an "output - domestic sales = export + reserve" model. The functions of a strategic reserve are to: 1) be a "shock absorber" and regulate the relations between production and export; 2) help stabilize international market prices and support our foreign trade sector in realizing its marketing scheme; 3) moderate the repercussions of economic vicissitudes in the capitalist world on our production; and 4) from the perspective of national strategic interests, provide a necessary material reserve to meet any future contingency.

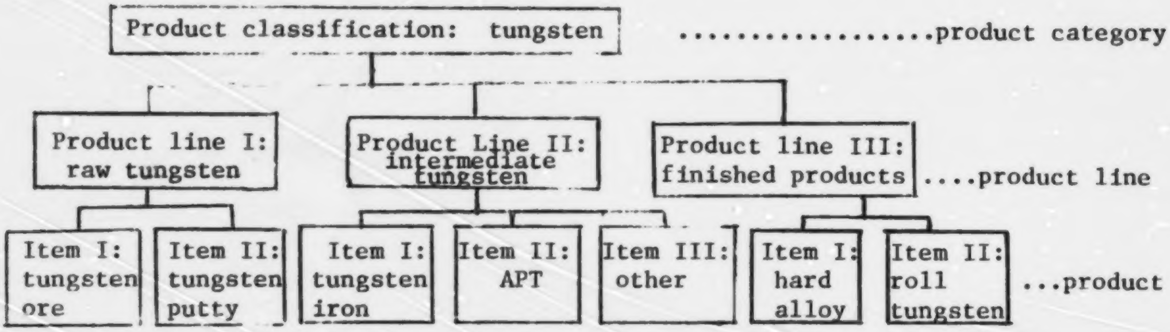
5. Product Strategy: This consists of three aspects: 1) export mix; 2) improving existing products; 3) the direction of product development, that is, the elimination of outdated products and the creation of new ones.

As the world's premier tungsten producer, China should naturally diversify the tungsten export mix as much as possible. It should be noted that because the jurisdictions of the several national companies which handled tungsten export in the past were delimited along production lines, there was at one point little coordination between the prices of different exports; ironically, highly processed exports were less expensive than primary products involving little processing. This illustrates the absolute need for strengthening coordination between different sectors with different product lines, which, in turn, requires an export management policy which stresses a high degree of centralization.

Product improvement is an ongoing task and encompasses such areas as quality, variety, standards, packaging and delivery, among others. The primary function of the export sector is to provide the production and research sectors with market information and be the intermediary between production and consumption.

The direction of product development has a major bearing on the future of China's tungsten industry. The basic direction China's tungsten export, production, and research should take is to gradually transform the present export mix dominated by raw materials into one dominated by finished products (see Diagram 1).

Diagram 1: Composition of Tungsten Exports


Product classification: tungsten
.................product category
Product line I: raw tungsten
Product Line II: intermediate tungsten
Product line III: finished products
....product line
Item I: tungsten ore
Item II: tungsten putty
Item I: tungsten iron
Item II: APT
Item III: other
Item I: hard alloy
Item II: roll tungsten
...product

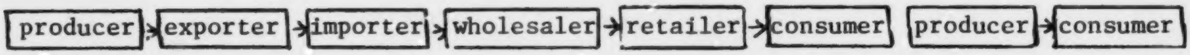
6. Pricing Strategy: The ultimate objective of any pricing policy is to maximize income. One can relate to pricing either actively or passively. In general small producers are at the "receiving end of pricing" and react to it, while large producers are better placed to influence prices. They are "price setters." With its tungsten exports accounting for 40 percent of total world exports, China is basically qualified to be a "price setter." In setting prices, it should avoid two tendencies. On the one hand, it should not be so preoccupied with quantity that it ignores prices, while on the other, it should not push for price maximization exclusively and neglect the implementation of marketing schemes. The basic goal common to all marketing schemes is to maximize economic results, but different marketing schemes often need different pricing strategies (see Table 4).

Table 4: Two of the Simplest Pricing Strategies and Their Marketing Schemes

	Low-price policy	High-price policy
Examples of marketing schemes	1. Limit competitors' output 2. Prevent the appearance of the next generation of products 3. Expand market share 4. Clear domestic excess inventory 5. Protect domestic employment	1. Increase domestic reserve or foreign trade stock 2. Clear stock in international market in order to better control next round of supply-demand 3. Curb price-slashing by middlemen, speculators or certain authoritative international publications

7. Channel Strategy: Since products are intrinsically different from one another, the channels they must travel before reaching their consumers necessarily diverge. Channels are usually measured by their "length" and "width." To traverse a long channel, a product must go through several intermediate links, which naturally increases costs and makes the product more dependent on middlemen. A short channel bypasses both of these problems but it does require greater efforts by the producer to open up markets and wood customers. With large-volume commodities, the short channel constitutes a smarter strategy (see Diagram 2).

Diagram 2: Comparison of the Long Channel (A) with the Short Channel (B)



(A) Long channel

(B) Short channel

In a short channel, the producer must enter into direct relations with more users, thereby "widening" the channel, which is in fact the only way to increase one's market share and attract more users. Even as we try to make full use of the middleman, our tungsten export should adopt a "short and wide" channel strategy as much as possible. This strategy is superior in that it reduces our dependence on middlemen and hence cuts costs; establishes long-term and extensive relations with our users, in the process ensuring our market stability; and makes us more accessible to users' comments on our products, thereby impelling our production and export sectors to improve products and services and accelerate development of the tungsten industry.

12581/12624
CSO: 4006/482

FOREIGN TRADE AND INVESTMENT

SHANGHAI FOREIGN TRADE THRIVING DURING SIXTH 5-YEAR PLAN

Shanghai JIEFANG RIBAO in Chinese 5 Nov 85 p 1

[Article by Xu Qiuliang [6079 4428 2733] and Gao Xiaoxiao [7559 5135 4562]: "Rapid Growth in Shanghai's Foreign Trade"]

[Text] Under the guidance of the party policy of "invigorating the domestic economy and opening the country to the world," Shanghai's foreign trade has made new progress during the Sixth 5-Year Plan period. From 1981 to late 1985, exports and imports handled by the port of Shanghai are expected to exceed $20 billion, up more than 30 percent over the period of the Fifth 5-Year Plan. Exports have increased by about 20 percent. During the past 5 years, Shanghai's foreign trade has been characterized by the following.

1. Changes in Export Commodity Mix

Shanghai's export commodity mix has changed under the Sixth 5-Year Plan, with agricultural produce and sideline products becoming less important proportionally and industrial products increasing their share of total exports. So far one-fourth of Shanghai's export commodities are agricultural and sideline products, while three-fourths consist of industrial products. Shanghai products, in particular, have come to account for a continuously rising percentage of the port's exports, approaching 80 percent in 1984, up from 57.8 percent in 1979.

2. Foreign Trade Channels Further Broadened

At present Shanghai maintains trade ties with over 160 countries and regions in the world, up more than 10 percent over the Fifth 5-Year Plan period, and has 18,000 customers. Not only has it been doing more business with established customers, but it has also made significant headway in its trade with advanced nations such as the United States, Japan, the Federal Republic of Germany, [FRG], Britain, France and Australia. In recent years, in particular, exports to the Soviet Union and Eastern Europe have risen fairly rapidly.

3. Progress in Internal Cooperation

To find new sources of goods, Shanghai's foreign trade sector has actively adopted such methods as joint development, joint management and joint import of foreign technology and capital to promote economic cooperation with the Shanghai economic zone and relevant industrial and agricultural production units inside the municipality. It has established over 600 specialized production points jointly with the outlying counties and farms alone, forming a number of rudimentary export production bases. Among their 80-odd categories of products are cotton fabrics, cotton yarn, wool fabrics, apparel, knitwear, bedding, handicrafts, hardware, chemical industrial goods, drawnwork and toys.

4. International Connections Strengthened Continuously

During the Fifth 5-Year Plan, it was exceedingly rare for Shanghai to set up a permanent office abroad. Under the Sixth 5-Year Plan, Shanghai has been doing just that with great enthusiasm in order to strengthen overseas economic ties. As of today, it has set up permanent trade organizations and joint ventures in, and despatched permanent trade representatives to, such countries and regions as the United States, the FRG, Japan, Switzerland, Panama, Chile, Liberia, Togo, the Ivory Coast, and Hong Kong.

Meanwhile, Shanghai has also allowed foreign and Hong Kong financial institutions and enterprises to set up permanent organizations in the municipality. So far almost 200 concerns from over 20 countries have established offices in Shanghai, many of them banks and businesses with an international reputation.

Besides taking part in the export commodity trade fair in Guangzhou, Shanghai in recent years has also sponsored its own trade talks to which it invites new and old clients to discuss trade and other economic cooperation projects. At the same time, there has been a steady increase in the number of trade promotion and study delegations it sends abroad.

12581/12624
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FOREIGN TRADE AND INVESTMENT

BRIEFS

GUANGDONG TECHNOLOGY IMPORTS--Over the past few years, industrial and communications enterprises in Guangdong Province progressed in importing advanced foreign technology and equipment. From 1982 to the beginning of this year, the province imported 700 items of production and assembly lines and 500,000 sets of equipment. With this technology and equipment, the province has scored marked economic results. Over the past few years, after importing technology, our province has produced approximately 10,000 new varieties. The province's gross industrial output value over the past few years has increased by a yearly average of 9 percent. [Summary] [Guangzhou Guangdong Provincial Service in Mandarin 0400 GMT 28 Jan 86 HK] /12232

CSO: 4006/716

LABOR AND WAGES

STATE EMPLOYEES' WAGES INCREASE 2.4-18.7 PERCENT

OW141016 Beijing XINHUA in English 0836 GMT 14 Feb 86

[Text] Beijing, 14 February (XINHUA) -- Wages of workers employed by the state increased by between 2.4 and 18.7 percent last year, said today's "ECONOMIC DAILY," quoting state statistical bureau figures.

Wages (excluding price allowances) of workers in culture, education and health undertakings rose most rapidly. Their average annual income increased by 18.7 percent to 1,123 yuan.

The gap between their wages and those of industrial workers has been narrowed. In 1980, they earned 125 yuan a year less on average. Last year the gap was 75 yuan.

The highest wage earners, however, are employees in construction and geological exploration departments. Their average annual income increased by 13.3 percent last year to 1,438 yuan.

They are followed in the earnings league table by workers in transport and posts and telecommunications departments, whose wages averaged 1,344 yuan last year. Next come scientific research institute employees with an average of 1,237 yuan.

Workers in financial and insurance departments had the lowest income growth rate of 2.4 percent. Their average wage last year amounted to 1,172 yuan, which was higher than governmental office and shop workers.

Office workers earned 1,099 yuan on average, while wages in commercial departments and service trades averaged 1,041 yuan.

/12929
CSO: 4020/203

TRANSPORTATION

BRIEFS

SHANDONG TRANSPORTATION DEVELOPMENT--Shandong Province witnessed an upward trend in passenger and freight transport during the "Sixth 5-Year" Plan period. It has increased highway transport mileage by 900 km, newly built 11 berths along coastal ports, and increased the number of civilian motor vehicles by some 800,000. The volumes of passenger and freight transport showed an annual average increase of 14.8 percent and 7.8 percent respectively. The province as a whole has some 460,000 cars, 300,000 trucks owned by individuals or collective households, 260,000 tractors, and more than 80,000 specialized households engaged in transport business. So far, 21 cities and counties in the province have established shipping companies which have 900 cargo ships with a total capacity of some 49,000 tons, up some 26,000 tons over 1980. [Summary] [Jinan DAZHONG RIBAO in Chinese 28 Jan 86 p 2 SK] /12232

SHANDONG VEHICLES--Shandong Province has 187,000 vehicles, averaging 1 per 400 persons. Last year the province's planned vehicle output was 7,300. The general sales situation is good. Vehicle output will increase by 10 to 15 percent this year, and it is estimated that they will have a good market. The province has 360,000 tractors and 107 million mu of farmland, averaging 1 per 45 households or per 296 mu of farmland. [Excerpts] [Jinan DAZHONG RIBAO in Chinese 14 Jan 86 p 2 SK] /12232

SHANGHAI HARBOR FREIGHT--By 2200 hours [1400 GMT] on 31 January, Shanghai Harbor had already handled 10 million metric tons of freight since the beginning of this year, loading and unloading a total of 331 vessels with foreign trade goods. Both are record figures. [Excerpts] [Shanghai City Service in Mandarin 0100 GMT 1 Feb 86 OW] /12232

CSO: 4006/729

PRC JOURNAL VIEWS USSR ENTERPRISE OWNERSHIP, OPERATION

HK081101 Beijing SHIJIE JINGJI in Chinese No 10, 10 Oct 85 pp 35-36, 18

[Article by Lin Shuiyuan [2651 3055 3293], of the World Economy and Political Research Institute under the Chinese Academy of Social Sciences: "Recent Changes in the Forms of Ownership and Methods of Operation in the Soviet Union"]

[Text] Generally speaking, the economic reforms of the Soviet Union and East European countries contain an expansion of the authority of enterprises. However, if appropriate readjustments are not made in the forms of ownership and methods of operation, expansion of the authority of enterprises will be very limited and it will be very difficult for enterprises to really become relatively independent commodity producers. Expedited by practice, the economic reforms in these countries have in recent years involved changes in the forms of ownership and methods of operation to varying degrees. Even in the Soviet Union which takes a prudent attitude toward reforms, some changes have taken place in the forms of ownership and methods of operation both in theory and in practice. They deserve our great attention.

I. New Explorations in Theory

Since 1965 when the Soviet Union pursued a new economic structure in an overall manner, there has not been any great improvement in its economic management mechanism and the declining trend in its economic growth rates has not been reversed. To explore new avenues of reform, in recent years the Soviet theoretical circles have begun proving the necessity of economic structural reform by proceeding from the basic contradictions of a socialist society, in particular from the contradiction between the relations of production and productive forces. As the important component part of the relations of production, the relations of ownership and the specific form of their realization (methods of operation) have become the important aspects in their theoretical studies.

In February 1983, in his article entitled the "Theory of Karl Marx and Several Problems Concerning the Soviet Socialist Construction," Yuri Andropov pointed out, to develop the productive forces, we must have a corresponding form of organizing economic life. Transformation of ownership is by no means a one-time move. The socialist historical experience has proved that it is no easy job to transform "mine" (that is, private ownership) into "ours" (that is, public ownership) and the transformation will take a long process which involves many aspects of endeavor. In a speech he delivered at a session of the CPSU held in June of the same year, Andropov sternly criticized the past practice of mechanically transforming collective farms into state farms, asserting that the fusion of two ownership systems (the system of ownership by the whole people and that of collective ownership) could take various different forms, including the establishment of integrated entities combining agriculture and industry. In December 1984, in a speech delivered at a national symposium on the science and practice of perfecting developed socialism and ideological work, Mikhail Gorbachev also stressed that it was necessary to perfect the forms of socialist ownership so as to ensure that direct producers and the means of production under the system of public ownership will be combined more organically. These statements by Soviet leaders are no doubt a stimulus to the Soviet theoretical world. In recent years, in their study of the forms of ownership and methods of operation, the Soviet theoretical community has put forth a series of new ideas conducive to promoting economic reforms, three of which are most important.

1. Many theoreticians expounded the necessity of separating ownership from the power of operation by proceeding from the relations of ownership and the specific forms of their realization, thus providing theoretical basis for strengthening the decisionmaking power of state-owned enterprises in operation while maintianing the system of ownership by the state.

Soviet economic theory has invariably stressed the centralized and planned leadership of the national economy and the connection between centralized management and public ownership (that is, the identity of the power of operation and ownership). However, in recent years, quite a few economists have come to realize the importance of giving state-owned enterprises full decisionmaking power in operation and expounded the relative economic independence of enterprises as one of the characteristics of the socialist system of ownership by the whole people. Some economists maintain that social division of labor and the deepening of socialization will give rise to the constant emergence of new enterprises, integrated companies, and new departments, whose independent nature in production and technology will enable them to become economically independent. Others contend that the main reason behind the preservation of relative economic independence of enterprises lies in uneven economic development, which is manifested in the fact that the combination of various production units with different amounts and qualities of the means of production results in different economic results. And still others, basing themselves on the organic relation between the relations of ownership and economic interests, argue that the system of ownership by the whole people should embody the economic interests of the state, the collectives, and the individuals in an overall manner. Therefore, under the system of ownership by the whole people, there is also a need to practically ensure the group interests of the enterprises as collectives, their integrated entities, and even of the departments of the national economy. In other words, even a state-owned enterprise should also reflect its special economic interests in its independent operation. All these arguments serve as the objective basis for expounding on the different facets of the expansion of the decisionmaking power of enterprises in operation.

2. Many economists criticized the idea of the system of ownership by the whole people being superior to that of ownership by the collective and the mechanical practice of transition from the system of ownership by the collective to that of ownership by the whole people, contending that the collective ownership system still had potential for further development, and advocated that the fusion of the two ownership systems could be achieved through establishment of a mixed ownership system. This has thus provided a theoretical basis for the consolidation and development of the current collective economy.

For a long time, the Soviet theoretical community has simply linked the socialization of production with the transition of the system of ownership by the cooperative and the collective farm to that of ownership by the whole people, regarding the system of ownership by the whole people (the system of ownership by the state) as reflecting "the principles of socialization" in the fullest way. This practice led to blind pursuit of socialist nationalization, that is, blindly initiating a transition from collective farms to state farms.

In recent years there has been a significant change in theory and viewpoint in this regard. Some economists pointed out that the theory put forth by some scholars in the 1950's that the system of ownership by the collective farm had hindered the development of the productive forces obviously lacked a dialectical viewpoint. They held that practice over the years had proved that many collective farms did not fall behind and even sometimes surpassed state farms in such areas as labor productivity growth rates, product cost cuts, output of products, and production rates of livestock products. Therefore, the system of ownership by the collective farm should not be regarded as an "obsolete" form of the agricultural economic relations system. Their conclusion is that it is not wise to regard the system of ownership by the collective as inferior to the system of ownership by the state in very general terms and that the development of the socialist ownership system should take the road in which the two ownership systems develop in a balanced way and will ultimately merge into the communist system of ownership by the whole people rather than a road of nationalizing enterprises under the collective ownership system. The Soviet Union has discarded the traditional practice of mechanically initiating transition from the system of ownership by the collective to that of ownership by the whole people, with most people advocating development of a mixed ownership system in various forms, such as integrated entities combining industry and agriculture. Most economists held that the current economy under the collective ownership system still had potential for further development. Some economists even favored an expansion of the scope of the collective economy. All these have had a certain impact on the readjustment of the existing forms of ownership.

3. Some economists have publicly affirmed the necessity of developing the individual economy and, starting from the general structure and development of socialist ownership relations, have proposed various economic forms including the private economy be developed.

For quite some time, the Soviet theoretical circles have denied the necessity of the existence of a private economy under socialism and taken a negative attitude even toward individual peasants and handicraft workers who are in existence in real life but very limited in number. Therefore, the study of the position of the private economy in the general structure of the socialist national economy has almost become a theoretical forbidden zone in the Soviet Union.

In recent years there has been a change in theory and viewpoint in this regard. Most importantly, some economists have expressed their definite views on the necessity of the existence of a private economy. For instance, Mu. Ba Fu Luo Wa [1191 1572 3940 3157 1216] argued "in the situation in which the state cannot promptly exercise control over the nationalized private enterprises economically, it is advisable to use the private sector of the economy for the time being to improve the work of meeting the needs of our residents." (Footnote 1) (See: Article by Mu. Ba Fu Luo Wa included in the book of "Common Characteristics of Building Developed Socialism," edited by A. Bu Jian Ke [7093 1580 1017 4430], (1980 Russian edition)). The well-known economists A. Aganbegyan wrote an article, pointing out, apart from the material incentive system in distribution, there also exists another incentive system which is "more flexible and active." This means allowing the existence and development of "private business people" (for example, allowing owners of private cars to let their cars). (Footnote 2) (A. Aganbegyan: "Incentive and Potential," 12 December 1982 issue of LABOR NEWS. In addition, a certain person definitely advocated that efforts be made to absorb the useful experiences of other socialist countries and "to set up small-scale state-owned enterprises, cooperative enterprises, and small enterprises based on the initiative of individuals." (Footnote 3) (Er. Ka La Ge Duo Fu [1422 0595 2139 2706 1122 1133]: "On the Organizational Structure of Industrial Management," the Soviet Union's "The Economy and Organization of Industrial Production" No 8, 1983).

Besides some relatively radical economists who publicly advocated development of the individual economy, some other economists regarded different forms of ownership as the specific forms of the realization of the socialist ownership relations as a whole and proceeded to affirm the socialist nature of the multiple forms of ownership including the individual economy. For this reason, they also contended: "From the viewpoint of promoting and bringing the potential of the national economy into fuller play, diverse social economic forms are completely in compliance with the current development level of productive forces" and attention should be paid to "exploiting the possible use of such forms of ownership as private and cooperative ownership." (Footnote 4) (See: The coverage of a symposium held in Kharkov on the problem of ownership which was published in the Soviet Union's "Economic Science" No 5 1983).

II. The Initial Practice of Readjusting the Forms of Ownership and Methods of Operation

As stated above, in recent years there has indeed been a fairly remarkable change in the theory concerning ownership in the Soviet Union. Though initial and indefinite, the change has affected or is affecting the practice of economic reforms to a certain extent. Its main manifestations are that methods of operation have changed and become dynamic and the structure of ownership have changed to a certain degree.

1. A contract system based on the work team has been introduced among the internal departments of an enterprise.

As early as the 1960's, the Soviet Union began to introduce the organizational form of the work team among the internal departments of an enterprise. At present the work team has become the basic organizational form adopted in many productive integrated companies, enterprises, and work sites. However, only the recently emerged contractor-based work team which practices its own business accounting and bases its work on a unified labor order (quota) with payment linked to the end results of its operation can be considered a fairly perfect form of the work team and provide a foundation for a collective contract system. By the end of 1982, the work team which adopted the principles of business accounting had constituted only about 10 percent of the total number of work teams in the Soviet industrial departments. To introduce a collective contract system and business accounting system among the work teams, in December 1983 the CPSU Central Committee adopted a resolution "On Further Developing and Raising the Efficiency of the Labor Organization and Incentive Forms of the Work Team in Industry" urging development of a comprehensive work team and a work team based on an overall contract system which contracts production tasks under unified management and links payment to the end results of operations. The resolution proposed that engineers and technicians as well as production organizers be included in a large-sized comprehensive work team. This contract-based work team with its own business accounting carries out the production of a certain product or the construction of a specific project according to the quantity, quality, and time limits stipulated in the contract it entered with the enterprises concerned and correspondingly gets payment for labor as stipulated in the contract.

The collective contract system in agricultural production came into existence earlier on. The most popular form of the agricultural collective contract system is the mechanized work-contracting group. However, up to 1982, only 9 percent of the production teams or groups in the planting industry had adopted a contract system and the number of such production teams or groups in other departments was even smaller. In view of this state of affairs, in May 1982, a session of the CPSU Central Committee adopted "A Program for the Food of the Soviet Union Before 1990." It stipulates that the collective contract system should be introduced intensively during the 11th 5-Year Plan period.

With regard to the changes which the implementation of the collective contract system based on the work team has brought to the enterprises' methods of operation, in his speech to the national conference attended by secretaries in charge of agricultural production which was held in March 1983, Gorbachev pointed out: The work team based on self-government and a contract system has the right to decide the composition of the specific unit's staff and elect its leaders and soical autonomous organ--work group or work team committee; the right to alter technologies and organize production and labor in an overall manner in the light of changed conditions; and the right to independently work out the plan for wage advance payment and distribution for the unit. Moreover, the economic relations between contracting units and the administrative authorities of enterprises and other sub-team collectives and the rights and duties they are to undertake have been codified in the legal form.

In the Soviet theoretical circles there is no consensus view on whether or not the work team which adopts a contract system is an economic entity. However, they have a definite view on one point: Because the rights and responsibilities of the collectives which adopt a contract system are strengthened and because the payment for labor of their members is decided directly by the achievements of their operations, the adoption of this collective contract system is indeed a change in the methods of operation.

2. A system of contracted responsibilities based on the enterprise has been introduced among livelihood services departments. A recent Soviet economic reform which has had a considerable impact on the enterprises' methods of operation was started on 1 July 1984 in the livelihood services departments of the Russian Republic as an experiment. According to the stipulations of the Soviet government, the enterprises involved in the experiment practice a system of handing over a fixed stable portion of profits to the state and of fixed amounts of wage and bonus funds; apart from the portion of profits which should be delivered to the state as required by fixed quotas, the enterprises are entitled to dispose of the remaining sum of profits and the state shall not take back the funds officially owned by the enterprises through accumulation; enterprise leaders are entitled to use the save portion of wage funds as professional and technical subsidies for their staff and workers and the amount of bonuses for the enterprises' staff and workers is decided directly by the increased volume of everyday-life services; and the work team with its own business accounting is introduced among the internal departments of enterprises, a form under which payment is linked to the end results of labor, and wages for the collectives are distributed according to the multiplier of labor contributed.

The well-known Polish economists Bu. Ming Zi [1580 2494 5419] pointed out: The essence of the system of ownership by the state "is surplus products going to the state" and if the whole or most of surplus products go the collectives, this will mean the system of ownership by the collective. What plays a decisive role in this respect, he contended, is real content and not form, that is, the ownership of surplus products in economic terms. In our opinion, as far as the former state-onwed enterprises are concerned, having departed from the economic status of being units designated exclusively to carry out state plans, they have the complete decisionmaking power in operation while delivering to the state a fixed amount of profits as required by state stipulations. Hence, there is a change in their method of operation. If the enterprises have the right to dispose of most of their surplus products and are in a position to independently use their surplus profits in investing in expanded reproduction (particularly, investment in fixed assets), this will result in a change in the nature of the enterprises' ownership. However, in terms of the current situation in the Soviet Union, the quotas of profits to be delivered to the state by the enterprises involved in the experiment as stipulated by the state are generally higher than the amounts of profits retained by the enterprises. Moreover, because the state has not clearly defined a policy of allowing the enterprises involved in the experiment to build the eocnomic sector partially under the system of ownership by the collective, generally speaking, the enterprises are not willing to invest in fixed assets using the surplus profits at their own disposal. For all that, with the remarkable change in the economic status of the enterprises involved in the experiment, a fundamental change has really taken place in their methods of operation, a change from being run by the state to being run by the collectives.

3. The economy under the system of ownership by the collective has been developed within given limits.

Generally speaking, whether the contract system based on the work team in the internal departments of an enterprise (or a collective farm) is introduced or the contract system based on the enterprises is implemented, it will only result in a change in the methods of operation (that is, a change from being run by the state to being run by the collectives or from being run by the big collectives to being run by the small collectives) and will not touch on the form and structure of ownership. However, in recent years the Soviet Union has developed collective enterprises in the countryside. This has brought about a change in the structure of ownership. The decision adopted by the CPSU Central Committee and the Soviet Council of Ministers in January 1981 "On the Complementary Measures for Increasing the Individual Citizens' Sideline Production of Farm Produce" clearly stipulates that it is necessary to work out the complementary measures for further developing collective gardening undertakings and vegetable-growing businesses and to expand the area of land for these purposes. Stimulated by the decision, from 1981 to 1982, 3,438 gardening cooperatives were set up throughout the country, with some 700,000 households participating in them. By 1982, the number of households whose members engaged in collective orchards and collective vegetable farms all over the country had grown to 5.2 million and 5.5 million respectively, thus expanding the economy under the collective ownership system.

4. The development of individual sideline occupations is encouraged and supported.

Individual household sideline production occupies an important position in the Soviet individual economy. However, in the 1970's, due to the failure to adopt necessary measures to improve the production and operational conditions for individual sideline production in real work, individual sideline production developed slowly and in some places the output of individual sideline production even declined considerably. To stimulate the development of individual sideline production, in 1977 and 1981 the CPSU Central Committee and the Soviet Council of Ministers successively adopted two decisions on developing individual sideline production. The two decisions demanded that collective farms and state farms build ties with individuals engaged in sideline production through signing production-marketing contracts; instructed the departments concerned to formulate and implement effective measures to ensure the supply needed by individual sideline production of fodder, young stock, young fowls, implements for orchards and vegetable farms, packaging materials, small machines and tools and fertilizers; and urged that the scope of purchasing activities by consumers' cooperative societies should be expanded and the number of commission agents for form produce on the market of collective farms should be increased. All these measures have brought the potential of individual sideline production into fuller play and boosted the production of farm and sideline products. Compared with the same period of 1981, on 1 January 1983 the nubmer of cows raised by individuals engaged in sideline production increased by 1,042,000 head (up 4.5 percent) and that of pigs, increased by 1,794,000 head (up 12 percent). At present there are 3,510 individual units (households) of engaged in sideline production in the Soviet Union and their output value comprises more than one fourth of the nation's total agricultural output value. At the beginning of 1983, the number of cows, pigs, and sheep raised by individuals engaged in sideline production accounted for one fifth of the nation's total and that of milch cows amounted to one third of the nation's total. The output of meat, fat or oil, milk, vegetables, and fruit turned out by individuals engaged in sideline production made up about 30 percent of the nation's total output and that of potatoes constituted approximately 60 percent of the total harvest yield.

Apart from developing sideline occupation in agricultural production, the Soviet Union has recently stressed the use of laborers working on their own in service trades. One of the forms adopted is to recruit after-hours "night-shift technicians." In other words, leaders of the livelihood services enterprises are allowed to recruit engineers, technicians, and staff members in the same trade as part-time working personnel so as to enable them to provide livelihood services to society in their space time using their skills and especially to improve service work at night or on holdiays, and enable them to gain earnings from their part-time jobs. This economic form is similar to the sideline occupation in agricultural production.

While adopting the policy of supporting and encouraging individual sideline production, the Soviet Union has adopted a fairly conservative attitude toward the development of private enterprises and individual peasants households. However, because of the needs of real life, in recent years, the Soviet Union has become a bit more flexible in its attitude toward the development of the small individual economy. Consequently, some small leased enterprises based on individual management have emerged along with individual peasant households which carry out their operations on a contract basis. For example, in the mountainous areas of the Georgian Republic, some collective farms which suffered losses year after year have contracted their livestock and land to the peasants, provided them with loans, machines, and fertilizers, and signed contracts sale with the latter for their farm products at the prices they had agreed upon in advance. In the Estonian Republic, some people including De Lu Wei [3676 7627 4850], deputy chief of the republic's Livelihood Services Department, demanded that small tailor shops and shoe-repair shops be leased out to "those who manage to meet the requirements for their operations both in variety and quality of service, to hand over to the livelihood services enterprises the maximum quantity of revenue in the form of bills, and to increase the volume of service at a required rate" and suggested that the experiment be tried first in such types of work as hairdressing, house cleaning, and the caring for children and old people, in which there is little difficulty in the problem of supplies (referring to implements and facilities for work). They contended that this was a form of individual labor in the services business and a "leasing system."

III. Theoretical Limitations and Their Impact on Economic Reform

In recent years, the change in the Soviet theory on ownership has brought about some changes in its methods of operation and some readjustment in the form and structure of ownership. However, all these changes are just a beginning and limited in scope and thus have a limited effect on the national economy. The reasons for this lie mainly in the limitations of traditional concepts as judged from a theoretical viewpoint.

Economic reforms in the Soviet Union have always centered on readjustment of decisionmaking power (either expansion of the management power of a locality or limited expansion of the management power of a large-sized enterprise) and seldom involved readjustment of the forms of ownership and methods of operation. In other words, exclusive attention has been paid to the readjustment of the structure of decisionmaking to the neglect of the close relations between the structure of decisionmaking and that of ownership and of the appropriate readjustment of the structure of ownership.

the main objective of economic reforms is to use the positive role of market mechanisms to stimulate economic development while upholding the socialist planned economic system. In using the positive role of market mechanisms, two objectives can be achieved. One objective is to use market forces to differentiate and compare the operation results of various enterprises and the pressure resulting from the use of market forces to promote enterprises to improve their operations and management and raise their economic results. The other objective is to use the indicator of market forces to discover changes in social demands so as to readjustment production patterns, to strengthen the weak links in social production, or to fill in the gaps in such production, and to gear production to the needs of society. However, if the forms of ownership and methods of operation are not properly readjusted, it will be difficult to achieve the two objectives.

First, with the forms of ownership and methods of operation being left unchanged, the state cannot but measure the results of an enterprise's operation by how will it fulfill its plan. Such being the case, the practice of management based on power sharing (that is, expansion of authority of enterprises) can take effect, if the use of targets set according to mandatory planning is reduced or readjusted. Under such circumstances, to get a greater share of retained profits as stipulated, on the one hand, the enterprises frequently try their utmost to hold back their existing production capacity and make a bargain with the state while working out plans to lower their production tasks, and on the other, they employ some tricks in fulfilling production tasks by using the expanded limits of authority and seek ways of obtaining various illegal profits. When the total output value was used to measure the operation results of enterprises in the Soviet Union, the enterprises invariably made every effort to use precious raw and semifinished materials so as to boost their total output value, thus causing enormous waste in the use of raw and semifinished materials. However, when the system of net output value targets based on quotas was introduced in favor of the above practice, the enterprises did their best to make whatever they could by themselves so as to increase the proportion of the quota-based net output value in the value of their products. This increased the enterprises tendency to become "big and complete" or "small but complete," thus hindering the improvement of the specialization and cooperation levels. If the targets based on material objects are used to assess the operational levels of enterprises, this will also lead to a series of contradictions and problems. If the targets based on quantities (namely, total output) are adopted, more often than not, the enterprise will concentrate on quantity to the neglect of quality and if targets based on product quality (that is, the usefulness of products to society) are introduced, it will be difficult to find a comprehensive index to accurately measure such usefulness.

Therefore, when the forms of ownership and methods of operation are not changed, the attempt to promote enterprises to improve their operations and management by reducing or readjusting the targets set according to mandatory planning is not only difficult to realize but it will, as often as not, give rise to many new contradictions and problems.

Second, by giving more power to enterprises on condition that the forms of ownership and methods of operation are not changed, it is impossible to really turn enterprises into realtively independent commodity producers and also impossible to bring the positive role of market mechanisms into effective play. When the existing forms of ownership and methods of operation are preserved, the standards to measure how well an enterprise is operated are planned targets. Most of these targets (except the output value of sales) [xiaoshou e chanzhi 69090786 7345 3934 0237] are not decided by market conditions, that is, they are not restricted by the market. Feeling no real pressure from the market, the enterprises not only lack an internal driving force for improving their operations and management but also lack the ability to adapt themselves to social needs. Where the market lacks normal competition and a balance between supply and demand, more often than not, the enterprises will concentrate on the production of products which promise greater profits by taking advantage of abnormal market relations and of the state relaxing control over planning, thus undermining state plans. Meanwhile, some economic sectors which originally existed quite legally in society illegally develop in the form of a so-called "second economy." This has led to the situation in which what should be decentralized cannot be decentralized and what should be centralized cannot be centralized or has not only suppressed the growth of various different economic sectors but also undermined unified state plans. In brief, if no appropriate readjustments are made in the forms of ownership and methods of operation, it will be difficult to simultaneously expand the authority of enterprises and to strengthen their responsibility. Market mechanisms will frequently play a negative rather than positive role and cause the enterprises to concentrate on illegal profits rather than encouraging them to turn out products needed by society, and may proceed to undermine state plans.

The developments stated above forced people to gradually shift economic reforms from expanding the authority of enterprises (namely, expanding the decision-making power of enterprises in operation by reducing the use of targets set according to mandatory planning) to readjusting the forms of ownership and operation. It is precisely for this reason that in recent years, while upholding the system of ownership by the state, the Soviet Union has contracted some state-owned enterprises (or leased as it can also be called) to the collectives for operation (such as the enterprise contract system practiced by the Livelihood Services Department of the Russian Republic). This change in operation methods has enabled enterprises to have complete decisionmaking power in operation. In the enterprises where the contract system is introduced, the motive force that promotes the enterprises to improve their operations and management is their collective economic interests which are realized through the functions of various market mechanisms rather than administrative discipline, and the standard of measuring their results of operation are the profits they created under the supervision of the market and society rather than their performance in fulfilling state plans. This will help overcome the contradiction between the state and the enterprises and bring the role of market mechanisms into play to a certain extent. However, at present those adopting this method of operation are confined to the enterprises under specific departments in specific regions of the Soviet Union. Moreover, even this practice of invigorating the economy using the leasing method still have fairly great limitations.

As far as economic invigoration is concerned, if we view social production as a process of reproduction which repeats itself again and again, we must take into consideration the creation of new production capacity including the expansion and technical transformation of existing enterprises and the building of new enterprises. This calls for an automatic regulatory mechanism for enterprises to make investment in expanded production. However, this effective mechanism is nonexistant in the contract system under which the leasing method is exclusively adopted. With the introduction of a contract system, after delivering to the state that portion of profits stipulated in the quotas, instead of being willing to invest the surplus profits which they are entitled to retain under their disposal in fixed assets, generally speaking, contractors try hard to use more surplus profits in the distribution of incomes among their staff and workers. Not only will this practice be detrimental to the development of social production (particularly the progress of technical innovation) but it will also cause excessive expansion of social consumption demands and a strain on supplies of consumer goods.

It can thus be seen that to really invigorate the economy, apart from using various methods of operation, it is also necessary to appropriately readjust the form and structure of ownership and to adopt a principle that allows various economic sectors to exist side by side. In other words, while the leading position of the state economy is upheld, appropriate efforts should be made to develop the collective economy, the individual economy, and new enterprises under the system of mixed ownership. However, the theory which occupies a dominant position in the Soviet Union contends: There is no need to readjust the existing forms of ownership and a significant change in the mandatory planning system is not allowed. In accordance with this theoretical viewpoint, it is impossible to make any significant change in the methods of operation still less a significant readjustment of the forms of ownership.

True, the number of additional collective orchards and vegetable farms in the Soviet Union has increased in recent years but not long ago, in a question and asnwer session with reporters, Eduard Shevardnadze, former first secretary of the Communist Party of Georgia, disclosed that while turning over some loss-making collective farms to consumers' cooperative societies to operate, Georgian Republic authorities indicated that "this method will not be introduced for the time being" in the cities. The reason behind the argument was that when the prices listed by the state, the cooperatives, and the individual businesses were simultaneously used, the abuse of this method was very likely. This indicates that the development of the collective economy is confined to the countryside. As for the development of the individual economy, the long-standing Soviet official views are recognition of individual ownership of individual consumer goods and the means of production used in directly meeting the needs of individual laborers and their family members for carrying out sideline production, and non-recognition of the existence of the individual economy under which people make a living mainly by using the means of production. At present although some people proposed developing the individual economy within a certain limit, no official endorsement has been authorized so far. All these show that compared with the readjustment of the methods of operation, the readjustment of the forms of ownership will be much more difficult.

Recently, in his report to a meeting on the problem of scientific and technological progress, Gorbachev stressed that it was necessary to significantly streamline the administration of various departments to cut off superfluous administrative links, and to shift the focus of the whole effective economic work to enterprises and that integrated companies and enterprises should implement a complete business accounting system so that the activities of enterprises will be more and more frequently regulated by economic quotas. He explicitly proposed that the enterprise contract system and the work team contract system introduced among the internal departments of enterprises be boldly popularized. These measures, if implemented successfully, will in effect cut off the administrative intervention by various departments in the affairs of enterprises and proceed to bring about a change in the enterprises methods of operation (even in the forms of ownership).

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CSO: 4006/725

SOUTH KOREA'S RECESSION OF 1980; RESPONSE, OUTCOME

Beijing XIANDAI GUOJI GUANXI [CONTEMPORARY INTERNATIONAL RELATIONS] in Chinese No 7, Sep 84 pp 52-57

[Article by Li Changhuan [2621 2490 3562] and Cao Shigong [2580 0013 0501]]

[Abstract] The pivotal economic indicators of investment, employment and foreign trade declined during South Korea's 1980-1982 recession. Industrial and mining indicators rose only slightly during this recession period because domestic construction and consumption served as major stimulants to the economy. The main causes of the recession were over-reliance on foreign capital, a skewed industrial structure with high proportions of heavy and chemical industries, deteriorating international competitiveness on account of obsolete equipment in export-oriented industries, heavy foreign debt, and inflationary pressure.

In addition to stimulating its domestic economy, South Korean authorities supported the highly competitive manufacture of automobile assemblies, shipbuilding, electronics, and traditional light industry such as textiles in order to boost export trade while interference with and control of the economy were reduced. The greatest support has been given in upgrading science and technology with computers as the focal point. These measures and the cyclical economic upturn in Western nations in 1983 pulled South Korea out of its recession, with the year's 9.3 percent economic growth being the highest in recent years. However, the heavy foreign debt ($40.1 billion by the end of 1983) remained as a drag on the economy. Basic scientific research is still weak. These factors indicate that the nation is still on a zigzag course of economic progress. With accumulation of a material and technical base since the 1960's as well as cooperation with monopoly capital in the United States and Japan, South Korea's economy will continue to grow if political stability can be assured.

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CSO: 4011/15

HONG KONG BANKER PREDICTS SLOWDOWN FOR TRADE WITH PRC

HK030537 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS Supplement) in English 3 Feb 86 p 1

[By Paul Sham]

[Text] China's curbs on foreign exchange spending will remain in force for some time, and may last longer in certain cities, according to a leading local banker.

In an interview with BUSINESS NEWS, the director and deputy general manager of the Hang Seng Bank, Mr T. C. Ho, said 1986 is definitely not a year of optimism for China business.

"In contrast to what most people think, China will need an extended period of time to correct its overheated economy," Mr Ho said.

"It is not a matter of several months or one year, and the period of tight control will depend on how well China succeeds in its bureaucratic reshuffling, how good it is at planning an urban economy, and measures to curb the forex drain."

In addition, he said China's huge size means the government's tighter policy will take a long time to trickle down to the regions.

But once it has reached the four corners of the country, its effects will linger longer, he said.

He said China's recent call to halt the spread of corruption and materialism signifies the beginning of a period of economic doldrums.

"Based on past experience, such a campaign will generally follow with a long duration of slow activity of all kinds," he said.

Whereas China's local finance and trade officials are reluctant to strike any new deals, foreign bankers and businessmen are also becoming "very selective" in involving themselves in new projects.

During this period, when some officials or companies might end up in trouble, he said the only safe way out is to be cautious and patient, Mr Ho said a quick solution to narrow China's growing trade deficit, which in a large part prompted the spending curbs, is unlikely in the foreseeable future.

He said when a country wants to improve its foreign exchange reserves, the two possible ways are to boost exports or curb spending on imports.

In light of the mounting protectionism worldwide and the weak export potential for some China-made products, Mr Ho said the only solution left for China was to cut its imports.

China still has a long way to go to improve its products' variety and quality to suit world markets, he said.

Besides, the less rapid economic growth of China's major trade partners, such as Hong Kong and the U.S., will thwart its efforts to boost exports.

"Since China's exports will not see fast growth in the near future, the country can only be frugal in its spending," Mr Ho said.

For some Chinese cities or provinces which have experienced faster economic growth in the past few years, the period of compression will be even longer, he said.

"The overheated economy in these areas, particularly Shenzhen, will need more time to cool down," he said.

So far as the banking business is concerned, the "slow situation" has been made worse by the growing competition from numerous foreign banks in the market.

Compared with interest rates of one percent above Libor or Hibor generally offered in the past, he said some banks now offer loans to China at interest as low as 0.25 percent above the two interbank rates.

Nevertheless, Mr Ho said the current tight situation only reflects China's genuine desire to pursue its goals of an open-door policy.

The current policy is just a correction, not a move towards a closed door approach, he said.

Mr Ho said after China puts its house in order, foreign bankers and businessmen will benefit from a stable and flourishing market.

"China trade should be a long-term business," he said, adding what happens this year will not reflect the potential of this market.

Though China's economy will pick up slowly (if at all) for the next one to two years, Mr Ho said this market is still attractive.

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CSO: 4020/202

REPORT NOTES BUSINESS UNCERTAINTY IN HONG KONG

HK060448 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS Supplement) in English 6 Feb 86 p 3

[By Paul Baran]

[Text] China's lengthening shadow over Hong Kong will create short-term nervousness and uncertainty within the business community despite reductions in the territory's domestic and external economic risks, according to a leading risk evaluator.

The latest report on Hong Kong by Political and Economic Risk Consultancy Ltd gives the territory good marks on economic fundamentals, but upgrades the political risk factor to five from two on a scale of 10.

However, says the report, China "is unlikely to interfere at all with economic policy matters" while increasing its influence over Hong Kong's political development.

In its forecast for this year's economic performance, the report says the end result won't be much different from last year.

Although the territory "is in danger of being enveloped in a mood of excessive pessimism" because of last year's poor performance, the report says Hong Kong is nearing, or has already reached, the bottom of its down cycle.

Any upturn will be gradual, with industries like regional banking lagging behind due to slack loan demand in Asia and textiles affected by protectionism in the U.S., the report says.

But "there are strengths in other areas, however, which will hold the economy steady in the coming year."

There are several key areas to watch, it says. Now the government's budget is out of the red, the authorities "have a bit more leeway to loosen their purse strings."

Direct fiscal spending "will not turn stimulatory, but a relaxation of the austerity programme would reduce some of the drag on the economy."

Several government projects will provide a fillip to the economy, the forecasters say.

The most important one is the second cross-harbour tunnel project, which involves initial capital of 3 billion, followed by the expansion of the Kwai Chung container terminal, which will take 2 billion to complete.

"Although neither of these projects are of the magnitude of the Mass Transit Railway project, which is now winding down, they should pick up some of the slack and help to underpin the economy for the next few years."

The other area is consumer spending, says the report. Average pay increases were more than double the three percent inflation rate last year, and workers have been saving more and borrowing less, except for car sales, which are booming.

But China's increasing involvement in the territory's life could dampen spending this year, the report says.

"Nerves are likely to be on edge" this year as China begins shaping its own political system locally and the population realizes the British authorities "do not have nearly the degree of independence" that they had previously to rule Hong Kong.

The report says those with spending power -- the ones most likely to emigrate -- may choose to save instead of spending.

For the year ahead, the report forecasts real gross domestic product will wind up in the four to five percent range, domestic exports will be flat after last year's decline and re-exports will slow further.

On the bright side, consumer spending is forecast to pick up, "but not fast enough to take up the slack in the export sector."

Inflation should stay in the single-digit range and employment should remain stable.

The state of local industry is clear from available statistics, the report says, noting the hardest hit in the fourth quarter were plastics, fabricated metal products and electronics.

"Conditions are weak but steady in most other industries, including textiles, wearing apparel and watches and clocks."

Sagging exports have pared investment in plant and machinery.

Manufacturing investment should remain slow as local industrialists wait for the prospects for overseas sales to become less uncertain, it says.

In the property market, last year's sharp upturn will not be repeated this year, the report says.

It notes "large supply of deluxe residential property, both for sale and rent, is expected to come on stream in 1986."

Take up of small flats is also likely to weaken because of the large number of projects completed by the public sector.

With buying power strong, fuelled by low inflation and unemployment, consumption should gain momentum this year, the report says.

Although consumers are not likely to go on a spending spree, consumption should grow about seven percent, which compares with the official forecast for last year of about 5.5 percent.

The report also forecasts a reshuffle in the government's economic branch, but no major changes to the overall fiscal policy.

It also expects the ongoing shake-out among deposit-taking companies to continue, along with a move by local banks to restructure their capital bases.

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HONG KONG TEXTILE MANUFACTURERS REMAIN UNEASY

HK070405 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS Supplement) in English 7 Feb 86 p 1

[Text] Hong Kong's jittery garment manufacturers continue to fear that China may swallow Hong Kong's garment quota to the U.S. and other countries after 1997 and give it to its own domestic factories.

Such a move would cripple the garment and textile industry in Hong Kong, which will then be administered by China as a Special Administrative Region.

The issue is one of the many trade-related areas being discussed by the Joint Liaison Group [JLG].

Among them are Hong Kong's continued membership in Gatt and its obligations under existing bilateral trade agreements.

In the absence of clear signals from the ongoing JLG talks, many in the trade fear the worst.

"There is no way China is going to allow private ownership of quotas," one source said.

"They'll probably dish it out in the provinces where there are plenty of factories that need orders," the sources said.

Another source said that in the past few years China has been unable to use all its quotas on some categories because it has priced itself out of the market.

Previously, said the source, U.S. buyers would give orders to factories in China "because they were so cheap."

"There was no way a Hong Kong factory could match their job price," the source said.

Volume was so large that China -- which has less quotas than Hong Kong -- used up its available quotas by mid-year, resulting in a subsequent embargo of imports from the country by the U.S. Customs Service.

But this pattern changed after China "jacked up the prices and priced itself out of the market."

As a result, the source said, China's quota utilization of popular categories has plummeted, leaving many factories short of orders.

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HONG KONG

PRC BANKS LOOK TOWARD EUROPEAN CURRENCY UNIT MARKET

HK040904 Hong Kong HONG KONG STANDARD (BUSINESS STANDARD supplement) in English 4 Feb 86 p 1

[By Chito Santiago and Meiling Liu]

[Text] A growing number of China banks are aggressively moving into the European Currency Unit [ECU] market offering ECU deposits as an alternative to the foreign currency deposit schemes in the local market.

At least two more banks, the Kincheng Banking Corp and the Yien Yieh Commercial Bank, joined the fray yesterday while China and South Sea Bank will launch its own programme at the end of this month.

This trend illustrates the growing worldwide popularity of the ECU, particularly at this time when the major currencies are being subjected to volatile foreign exchange rates.

The ECU is a basket of currencies consisting of fixed amounts of the currencies of the member countries of the European Economic Community.

Although sterling is not included in the basket, many banks have been quoting ECU's against it and the U.S. dollar.

One ECU yesterday was quoted at 0.9090 against the greenback, and between 7.09 and 7.12 against the Hong Kong dollar.

Kincheng's assistant general manager, Mr. K. W. Shum, told BUSINESS STANDARD that the current appreciation of some of the European currencies against the U.S. dollar gives depositors an opportunity to earn more by switching into ECU's.

This is on top of the higher interest rates being quoted for ECU deposits.

For instance, Kincheng yesterday was offering 10.125 percent per annum for one-month ECU, against 7.5625 percent p.a. for one-month U.S. dollar.

The bank set 1,000 ECU as its minimum requirement, quoting rates for one, two, three and six months.

"The ECU deposit business is likely to grow, although it's still not known to many people here," Mr Shum said.

He described the response to their initial launch as keen and in fact, generated a business volume, which is higher than they expected.

Yien Yieh was also quoting ECU deposits at one, two, three and six-month maturities and the interest rates vary according to their size.

For example, a 5,00 ECU deposit yesterday commanded 10 percent p.a., against only 7 percent p.a. for 1,100 ECU.

Besides higher interest earnings, the volatility of ECU exchange rates is much lower than other currencies.

Other Chinese banks which have so far introduced ECU deposit schemes this year include the Po Sang Bank and the Bank of Communications [BoC].

Po Sang introduced its own scheme on January 8 and its deputy general manager, Mr Fung Chi-kin, said the response has been "very good." BoC made its launch on January 20.

French Banks, such as Credit Lyonnais and Banque Nationale de Paris [BNP] were among the first foreign institutions to introduce the ECU deposit programme in Hong Kong.

BNP yesterday quoted 10.375 percent p.a. interest for one-month ECU, with the minimum deposit pegged at U.S. $5,000 equivalent.

These French banks have also set up separate desks for ECU accounts locally considering that a number of Asian borrowers have issued ECU-denominated Eurobonds.

In August last year, the Mass Transit Railway Corp [MTRC] became the first Hong Kong entity to tap this market when it offered 50 million ECU worth of bonds.

The proceeds of this issue were converted into Hong Kong dollars through a swap transaction, thus enabling the MTRC to obtain cheaper funds.

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China Report

ECONOMIC AFFAIRS

CHINA IN THE YEAR 2000

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CHINA REPORT

ECONOMIC AFFAIRS

CHINA IN THE YEAR 2000

Beijing GONGYUAN 2000 NIAN DE ZHONGGUO [CHINA IN THE YEAR 2000] in Chinese Sep 84 pp 1-222

[Text of book edited by the "Year 2000 Research" Group, published by Science and Technology Documents Publishers, Beijing and Chongqing]

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[Text] Brief Introduction

Based upon numerous foreign and domestic research data, this volume attempts to analyze the presents conditions, special features, and problems of China's population, energy resources, farmland, water resources, metallic mineral resources, forestry, food, communications, water-resource conservation, and economy; to forecast supply and demand as well as prospects for development in these fields in the year 2000; and to present certain proposals and views concerning relevant policies.

This volume is intended as a systematic understanding of China's social and economic conditions and a forecast of its future. It is the first monographic work of its kind in China.

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Editor's Note

Inaugurated in the latter half of 1981, the China Scientific and Technological Information Research Institute has for more than 1 year organized its research personnel to conduct a forecast on China's economic, social, and other developments in the year 2000. Their research covers 10 different fields, namely, population, energy, metal mineral resources, communications and transportation, farmland, forestry, water resources, water contamination, food, and economy. The purpose of this research is to present a rough sketch of the prospects of development in the year 2000 in addition to certain views and tentative suggestions for the solution of some urgent problems from the standpoint of development strategy for the reference of the departments concerned in their formulation of policy decisions, plans, and programs of action.

Ten comrades, namely, Cheng Yuqin, Gong Guangyu, Shang Yichu, Liu Shiwei, Wei Mai, Cheng Fengge, Wang Hengwei, Wang Yuqing, Li Shihao, and Cheng Hongmo, have participated in this research, in the course of which, warm assistance and strong support were given by many experts, scholars, and workers of the departments concerned, and the fraternal units. The assistance and support from them are hereby gratefully acknowledged. Because of limitations of our work conditions and standards, certain defects and errors are unavoidable, and comments from readers in various circles are respectfully invited.

February 1984

Chapter 1. China's Population Today and Tomorrow

by Cheng Yuqin [4458 3768 3830]

Summary: The pattern of China's population development has begun to change from one of high birth rate, low mortality rate, and high natural growth rate to one of low birth rate, low mortality rate, and low natural growth rate. However, because of the effects of the peak birth rate on two occasions, a new upsurge of births will appear in the future. This article will broadly analyze the present status of China's population and forecast its development in the next century. It also points out that unless effective measures are taken to control population growth, China's population will exceed 1.2 billion in 2000. This article also raises several pertinent issues in the hope that China's population development will be commensurable with its social development. [End of summary]

China's population development has passed through three stages in the past several decades. Before the liberation, the development was characterized by a high birth rate, a high mortality rate, and a low natural growth rate. After the founding of new China, and along with the improvement in living conditions and the development of medical and public health services, the mortality rate declined year after year, while the birth rate was not controlled in time. It was then the stage of high birth rate, low mortality rate, and high natural growth rate. A sustained peak birth rate occurred in the 1950-1958 period and again in the 1962-1975 period. Thanks to the active efforts in family planning since the 1970's, the natural population growth rate dropped from 2.6 percent in 1970 to 1.2 percent in 1980 and China's population development entered a new stage of low birth rate, low mortality rate, and low natural growth rate.

According to the third population census conducted on 1 July 1982, China's population had already reached 1,008,180,000 (the 23.65 million people in Taiwan, Hong Kong and Macao not included). The effects of the peak birth rate in the previous periods will lead to another upsurge within the next 15 years. Therefore, an analysis of China's present population status, a forecast of the trend of its development, and a study of the noteworthy problems will not only help China attain its objective of keeping its population below 1.2 billion but also form an important basis for its long-range economic and social plans.

I. China's Present Population Status

The analysis of the present status of China's population (not including that of Taiwan, Hong Kong, and Macao) generally has the following features.

A. Large Absolute Number

According to historical records, China has ranked first in population for a very long time. Except for certain brief interludes, its population has generally accounted for one-sixth to one-fourth of the world's population since the beginning of the Christian era. During the reign of Daoguang in the Qing dynasty, the proportion was as high as one-third. In 1982, China's population numbered 1,015,000,000, equivalent to the total world population some 150 years ago, and accounting for 22 percent of the world population of 4,585,000,000 in 1982. It was only some 130 million less than the grand total of the population of 33 countries in the developed regions of the world.

In 1982, there were 7 countries in the world with a population of more than 100 million each. Excepting India (with a 714 million population), China's population was 11 percent higher than the sum total of 986 million of 5 countries, namely, the Soviet Union (270 million), the United States (232 million), Indonesia (151 million), Brazil (128 million), and Japan (119 million). There were 17 countries with a population of more than 50 million each, and 57 others with a population of more than 10 million each in the world. The combined population of 8 Chinese provinces, namely, Sichuan, Henan, Shandong, Jiangsu, Guangdong, Hunan, Hebei, and Anhui, already exceeded 50 million. With the exception of Xizang, Qinghai, Ningxia, Beijing, and Tianjin, the population of all the other provinces and autonomous regions exceeded 10 million.

B. Rapid Growth

In the 1950-1982 period, China's population rose 85 percent, from 550 million to more than 1 billion. The average increase rate was 1.935 percent, or more than 14 million (equivalent to the population of Australia) each year. In the same period, the world population rose 83 percent, from 2.5 billion to 4,585,000,000, at an average rate of 1.91 percent each year. The growth rate of China's population was higher than the world average. During the peak period of 9 years from 1950 to 1958, the average growth rate was 2.22 percent with 20.68 million births or a net increase of 12.44 million each year. In the 14 years from 1962 to 1975, the average growth rate was 2.41 percent with 25.78 million births, or a net increase of 19.21 million each year. In 1980, the growth rate dropped to 1.2 percent, but was followed by an upswing in the next 2 years--1.455 percent in 1981 and 1.45 percent in 1982. The annual increase was 1.4 percent, meaning a doubling in 50 years.

C. A Young Age Structure

A rapid increase in population naturally leads to a higher proportion of young and middle age in the age structure. In 1981, people below the age of 15 accounted for 34.4 percent of China's population, those below the age of 30 accounted for more than 63 percent, and old people over 65 accounted for only 5.47 percent, thus forming a pyramid-shaped age structure. The age structure of developing countries was similar to China's. In 1981, their people below (but not including) the age of 15 accounted for 39 percent, and those over 65 accounted for 4 percent, whereas in the developed regions of the world, people below 15 and over 65 were 24 percent and 11 percent, respectively, forming a bar-shaped age structure. The pyramid-shaped structure in China augers another peak birth rate in the future.

D. Uneven Distribution

Many countries have shown signs of uneven population distribution, but those of China are more striking. In geographical distribution, more than 90 percent of its present population are living in 40 percent of the national territory in the southeast, while less than 10 percent are living in the remaining 60 percent in the northwest. In Jiangsu Province, for example, each square kilometer is occupied by an average of 590 persons, while in Xizang, the number of persons is only 1.6 per square km. According to distribution in terms of land elevations, more than 70 percent of the people lived in one-fourth of the national territory at less than 500 meters above sea level, and 50 percent of these people lived in the plains less than 200 meters above sea level. Those living in 33 percent of the national territory at an elevation of more than 2,000 meters above sea level accounted for only 1 percent of the national population. This situation exists in many provinces and regions. In Qinghai Province with a population of more than 3.8 million, for example, 90 percent were concentrated in less than 5 percent of the provincial territory in the northeastern rural regions, where the density of population was 19-fold the average density of the province.

E. High Ratio of Rural Population, Faster Population Growth in Cities of More Than 1 Million in Population

In 1982, the ratio between urban and rural population in the world was 37:63. The ratio was 69:31 in the developed regions and 26:74 in the developing regions. In China, it was 12.5:87.5 in 1952 and 14.3:85.7 in 1982, with no great change in 30 years. However, the absolute number of China's urban population increased from 71.63 million in 1952 to 145.16 million, or doubled in 1982, while the number of cities increased from 157 to 239. In city development, the large cities were faster than the small and medium-size ones. In 1952, there were only 9 large cities with a population of more than 1 million each, and a total population of 18.59 million. The number of these cities increased to 38 with a total population of 75.17 million, 52 percent of the total urban population in the country. On the other hand, there were 138 small and medium-size cities with a population of less than 500,000 each in 1952. In 1982, the number of these cities increased to 154 with the addition of only 16. Among these cities, the number of those with a population of less than 300,000 fell from 131 in 1952 to 108 in 1982. In 30 years, the urban population of the whole country was increased by 69.99 million, of which, approximately 81 percent belonged to cities with more than 1 million population each. In the 1960's, one of the 10 largest cities of the world was in China, and in the 1970's, Beijing also became one of these cities, thus, China had two of the largest cities of the world.

Let us look at the picture from the point of view of rural labor force. In the world today, the rural labor force accounts for 46 percent of the entire labor force. The proportion is about 13 percent in the developed regions and 60 percent in the developing regions. In China, however, it is as high as 75 percent, far above the world average.

F. Low Average Cultural Level

Health conditions among Chinese people have been much improved since liberation. In 1981, the life expectancy was 68 years for males and 70 years for females, both approaching the standards of developed countries. However, their cultural level is low. Although 24 percent of China's population are of the secondary school standard, and 35 percent are of the elementary school standard, only 0.6 percent have received university education, while 23.5 percent are illiterates or semiliterates. In six provinces and regions, the illiteracy or semiliteracy rate was more than 30 percent (an average of only 2 percent in developed countries), and even in Beijing, the national capital, the rate was as high as 12.5 percent. Among every 10,000 persons in the country at present, there are only 13 university students, whereas the number is 509 in the United States, 212 in Japan, and 195 in the Soviet Union. Even India has a larger number--52--than China.

G. Scarcity of Per Capita Resources

China has a huge territory and numerous resources. However, because of its large population, the per capita amount of natural resources is far below world average.

	China's per capita	World per capita
Territory	14.4 mu	45.3 mu
Farmland	1.5 mu	4.65 mu
Forest land	1.8 mu	13.8 mu
Grassland	5 mu (approximate)	15 mu
Fresh water	2,563 cubic meters	10,800 cubic meters
Coal (geological deposits)	1,465 tons	3,146 tons
Petroleum (geological deposits)	30 to 60 tons	94 tons
Water energy (total reserves)	0.67 kw	1.1 kw
Iron ore (verified reserves)	43 tons	87 tons

Among these resources, only farmland and forest lands can be expanded. According to an estimate, there are only 200 million mu of farmland and 1.28 billion mu of forest land available for exploitation. Thus, provided the population remains the same, the per capita acreage can only be increased by 0.2 mu and 1.28 mu, respectively; but they will be much less if the population is fairly greatly increased. Based on a population of 1.2 billion, China's per capita resources will be one-sixth lower.

II. Population Forecast for 2000

According to the third national census conducted on 1 July 1982, China's total population at the end of 1981 (not including the people in Taiwan, Hong Kong, and Macao) was 1,001,600,000, after subtracting a net estimated increase in the first half of 1982. With this as the base figure, we can use the mathematical model worked out by Song Jiang [1345 0256] and the other comrades to forecast our future population according to different birth plans. The results will be as follows:

A. Increase in Total National Population

The conditions of increase in total national population are shown in Table 1. From this table, we can see the increase in China's population in 2000 over 1981 according to any one of the birth plans. It will be 1,189,000,000 according to the 1.7-birth plan and 1,246,000,000 according to the 2-birth plan. If the increase is at the 1981 rate of 1.455 percent, the population in 2000 will exceed 1.3 billion. After 2000, China's population will continue to increase. According to the 1.7-birth plan, the population will reach the peak level of 1,305,000,000 in 2035, and then, after 2035, begin to drop to 920 million in 2080. According to the 2-birth plan, the population will reach the peak level of 1.57 billion in 2045, and drop to 1.43 billion in 2080, when it will still exceed that of 1981 by 400 million. If the 1981 increase rate of 1.455 percent is maintained, then 100 years later, China's population will reach 4.19 billion, only 300 million less than the world population in 1981.

Table 1. Forecast of China's Total Population

Number of births*	Average natural growth rate in 1982-2000 (percent)	Total population in 2000 (10,000 persons)	Years in which the population becomes the largest	Largest number of population (10,000 persons)	Total population in 2080 (10,000 persons)
1.0	0.27	105,489	2000	105,489	28,797
1.5	0.73	115,055	2021	119,113	67,749
1.7	0.91	118,884	2035	130,479	92,204
2.0	1.16	124,630	2045	157,038	143,240
2.3	1.40	130,318	--	--	213,369
2.5	1.55	134,211	--	--	275,419
3.0	1.92	143,801	--	--	498,329
1981 growth rate	1.455	131,792	--	--	418,568

* This refers to the average number of children born by each woman of childbearing age.

Some foreign institutions have forecast China's population and believed that in 2000, its population will be between 1.19 billion and 1,329,000,000. Detailed figures shown in Table 2.

Table 2. Foreign Forecasts of China's 2000 Population

Forecasting institutions	Base year population (100 million persons)	Average natural growth rate (percent)	Population in 2000 (100 million persons)
UN Population Activities Fund	9.57 (1980)	1.10	11.9
U.S. Population Consultation Bureau	9.75 (1980)	1.2	12.12
World Bank	9.75 (1980)	1.24	12.51
"Global Research in the Year 2000"	9.35 (1975)	1.4	13.29

From these two tables, we can anticipate a drastic increase in China's future population. If China wants to keep its population below 1.2 billion in 2000, then each childbearing woman cannot have more than 1.7 births, and the natural growth rate must be kept below 0.95 percent. This will be a very arduous task according to the present conditions of birth.

B. Children and Old People

The proportions of children and old people in population are indications of the population's aging. The forecast is shown in Table 3. According to the 1.7-birth plan, the proportion of people up to 15 years of age in China will drop from 34.4 percent in 1981 to 23.4 percent in 2000 while that of old people over 65 will rise from 5.47 percent to 7.96 percent in the same period. In 2000, the national average age will be 32.8. It is now generally agreed in the world that when the proportion of old people over 65 is more than 10 percent, the population is of an aged type. In 1981, the proportion of people over 65 years of age was 11 percent in the developed regions of the world. It was highest in Sweden at 16 percent, while, in the same country, that of people below 15 years of age was only 20 percent. In China, the problem of an aged population will not arise in 2000. After 2000, however, the population under 15 years of age will diminish down to 17.1 percent in 2020 and 12.3 percent in 2080. The population over 65 will show a marked increase--up to 15.2 percent in 2020 and 36.3 percent in 2080. In 2080, the average age of China's population will be 51 years. Therefore, keeping up the 1.7-birth plan over a long period will result in a gradual aging of China's population.

Table 3. Forecast of Population of 0-15 and 65-and-more

	1 birth		1.7 births		2 births	
Year	Age 0-15 (percent)	Age 65 and more (percent)	Age 0-15 (percent)	Age 65 and more (percent)	Age 0-15 (percent)	Age 65 and more (percent)
1990	21.5	6.93	26.1	6.52	27.9	6.36
2000	15.5	8.97	23.4	7.96	26.3	7.59
2020	8.2	23.0	17.1	15.2	21.0	13.6
2040	4.9	45.4	13.5	31.0	17.6	25.8
2080	3.9	59.17	12.3	36.25	16.4	29.10

In the cities, according to the 1.2-birth plan, the proportion of people of the 0-15 age class will drop from 24 percent in 1981 to 15 percent in 2000, to 10 percent in 2020 and to 7.1 percent in 2080, while that of people over 65 will rise from 5 percent to 10.9 percent, 23.3 percent, and 45 percent, correspondingly. The average urban population age will be 38 in 2000 and 56 in 2080. Therefore, the signs of aging in the urban population will appear early, and the extent of aging will be more serious. From this, we can see that keeping the number of births low over a long period will result in an irrational age structure of population with unfavorable effects on economic and social developments. It is, therefore, necessary that attention be paid to the readjustment of the birth rate after 2000.

C. Working Population

Forecast of the working population (age 16-60 for male and 16-55 for female) is shown in Table 4. In the 1981-2000 period, according to this forecast, an average of 23 million young people, including 3.6 million in the cities, will join the workers' ranks every year (2.2 million retired workers included) [as published]. In 2000, according to the 1.7-birth plan, there will be a working population of more than 760 million, 64 percent of the total population (56.2 percent in 1981). The proportion will be the highest in 2006 at 65.4 percent. Then it will begin to fall to 43.3 percent in 2080. In other words, according to the 1.7-birth plan, the total support index will gradually fall to 0.55 in 2000 and the optimum level of 0.53 in 2006. Then an upswing will follow so that in 2024, the index will be 0.74, which is close to that of 1981. After 2024, it will continue to rise so that in 2034, the total support index will exceed 1, showing a heavier burden for every worker by that time. At the same time, the age structure will also undergo some changes. In 1981, the "old worker" over 45 accounted for only 19 percent of the total working population. According to the 1.7-birth plan, the proportion of old workers will rise to 23 percent in 2000 and 33 percent in 2080. This shows the gradual aging of the working population. Therefore, the birth rate should be readjusted at the proper time in order that the working population will not be overburdened and the proportion of old workers will not be too high.

Table 4. Forecast of Working Population

	1 birth		1.7 births		2 births	
Year	Number of people (10,000)	Percentage of total population	Number of people (10,000)	Percentage of total population	Number of people (10,000)	Percentage of total population
1990	69,185	66.9	69,185	63.0	69,185	61.4
2000	74,716	70.8	76,622	64.5	77,439	62.1
2020	60,571	61.4	76,325	59.5	83,244	58.1
2040	30,645	36.2	61,648	47.5	77,730	49.8
2080	8,093	28.1	39,966	43.3	68,813	48.0

D. Manpower Resources for Military Service

Chinese youths have the duty of serving in the armed forces. The forecast of people of the 18 to 22 age class is shown in Table 5. In 1981, China had more than 92 million people of this age class. Beginning in 1982, according to the 1.7-birth plan, there will be 89.22 million of them in 2000. After 2000, people of the conscription age will gradually decrease so that in 2080, people of the 18 to 22 age group will be less than one-half of the 1981 figure. On the whole, however, as long as we properly revise the policies, there will be no problem of shortage of manpower for military service.

Table 5. Forecast for 18-22 Age Group

(Unit: 10,000 persons)

Number of births	2000	2020	2040	2080
1	8,326	4,029	2,129	521
1.5	8,751	6,441	4,829	2,534
1.7	8,922	7,360	6,225	4,139
2	9,178	8,761	8,660	7,846

E. Urban and Rural Population

Beginning 1982, according to the 1.2-birth plan, the urban population will increase to 153.38 million in 2000, a net increase of 9.65 million over 1981. In 2000, based on a 1.2-billion population, the total national population will increase by nearly 200 million, of which 5 percent will be urban and 95 percent rural population. According to the natural growth rate and barring large-scale relocation of people, the ratio between urban and rural population (which includes township population) will be changed from 14:86 of 1981 to 13:87 of 2000. The percentage of urban population will be reduced with a corresponding increase in the rural population. Of course, this is only an imaginary situation. Along with economic development, the percentage of rural population will be markedly reduced.

F. Minority Population

The forecast on minority population is shown in Table 6. In 1981, the minority population accounted for 6.7 percent of the total population. According to a 3-birth rate, the minority population will reach 96.76 million, 8.1 percent of a 1.2-billion population in 2000, at an average natural growth rate of 1.94 percent each year, which is lower than the average rate of 2.2 percent in the 32 years after liberation, but more than doubling the average growth rate of the total national population in the 1982-2000 period. In 2080, the minority population may reach 333.6 million. It has very rapidly increased in some regions since the founding of the People's Republic. In Ningxia Hui Autonomous Region, for example, the Hui population in 1981 trebled that of 1949. This situation has hindered the improvement of living conditions and the raising of the cultural level in these regions. Therefore, it may lead to the serious problem of overpopulation. Particular care should be exercised to distinguish between the densely populated and the sprasely populated regions in deciding on the number of births for the minority population.

Table 6. Minority Population Forecast

Number of births	Average national growth rate, 1982-2000 (percent)	Total population in 2000 (10,000 persons)	Years in which the population becomes the largest	Largest number of population (10,000 persons)	Total population in 2080 (10,000 persons)
2.0	1.18	8,343	2045	10,513	9,529
2.5	1.57	8,985	--	--	18,437
3.0	1.94	9,679	--	--	33,360
3.5	2.3	10,296	--	--	57,051

G. Conclusion

The following conclusions can be drawn from the forecast on China's population development in 100 years:

1. If the population in 2000 will not exceed 1.2 billion and the number of births per childbearing woman does not exceed 1.7, the average natural growth rate must be less than 0.95 percent each year.

2. According to the 1.7-birth plan, China's population has still to increase for 54 years before it can reach the peak figure of 1,305,000,000 in 2035, after which it will begin to drop. In 2080, it will be less than 1 billion, namely, 922.04 million.

3. In order to maintain a rational age structure of population, or, in other words, to avoid excessive aging in order to reduce the burden of the working population, the 1.7-birth plan can generally be maintained for about two generations before a revision of the birth rate is due. If we should continue to maintain this plan indefinitely, the problems of a seriously aging population and an excessive burden for the working population will ensue.

4. The growth of minority population should also be properly controlled to avoid the serious problems of excessive growth.

5. China's working population in 2000 should show a net increase of 200 million over 1981. Therefore, more avenues should be opened for the utilization of this huge manpower in a planned way.

III. Population Development Issues Deserving Study and Attention

From these forecasts, we can see that China's population problem is both a serious and a protracted one. The solution of this problem will take one or two centuries. The methods of solution are, first, active control, and, second, full utilization. At the same time, attention should be paid to the solution of the various problems arising in the course of population development. Under present conditions, the following measures should be studied.

A. Resolutely Control Population Growth, Strive To Keep Population Below 1.2 Billion

Excessive speed of population growth may seriously affect economic growth, fund accumulation, and improvement of people's living conditions. According to the calculations of foreign countries, the increase of every percentage point in a country's population will be accompanied by the decrease of 1 percent in the economic growth. According to UN calculations, the economic growth rate should be maintained at more than 4 percent after a 1-percent increase in population in order to avoid any lowering of living standards. In the 1957-1980 period, China's grain output was increased from 390 billion jin to 636.4 billion jin, a 61-percent increase, of which 48 percent was used to meet the demand created by the new population, and only 13 percent could be used to improve people's living conditions. Thus in 23 years, the increase in per capita grain was less than 45 jin. There was also the same problem with housing. In the 1978-1980 period alone, the area of urban housing was increased by 182.38 million square meters of which 80 percent was offset by the newly increased population and only 20 percent was available for improving the housing conditions of the existing population. Therefore, keeping China's population below 1.2 billion is an important strategic measure for quadrupling the gross value of industrial and agricultural output and for making the people fairly well-to-do. To attain the goal of keeping the population below 1.2 billion, according to the forecast, all women of childbearing age in China must limit the number of their births to 1.7 each. However, the number of births in 1981 far exceeded this limit--up to 2.63 births--and the proportion of multiple births was more than 28 percent (mainly in the rural regions and particularly the minority nationality regions). If the population develops at the 1981 birth rate, China's population in 2000 will exceed 1.3 billion. It takes time to lower the birth rate and to ensure the development of population according to plan. Thus, in population planning for 2000, we must consider the different conditions in the rural and urban areas and the minority nationalities as well as the actual problem of lowering the number of births immediately, before making any rational arrangements. As the situation actually stands, we may, from 1982 to 2000, use the 1.2-birth plan for the cities, the 3-birth plan for the minority nationalities, and a step-by-step plan of 2.0, 1.7, 1.7, and then 1.5 births for the rural regions. In this way, the number of births by each childbearing woman will be maintained at about 1.7 throughout the country, and the task of keeping the total population below 1.2 billion in 2000 may be accomplished. This idea of population growth is shown in Table 7. Especially at present, the most effective measure to solve the problem of a rapidly increasing population, now faced by China, is to energetically enforce the policy of one child per couple. There cannot be the least relaxation in this enforcement, or China's population may exceed 1.2 billion in 2000.

Table 7. Population Growth 1982-2000 Envisaged

Years	Number of births per woman of childbearing age: Urban	Rural	Minority nationalities	Average natural growth rate each year (percent)	Total population at the end of each period (10,000 persons)
1982-1985	1.2	2	3	1.3	105,179
1986-1990	1.2	1.7	3	1.09	111,018
1991-1995	1.2	1.7	3	0.92	116,246
1996-2000	1.2	1.5	3	0.51	119,228

B. Actively Improve the Population Quality, Open More Avenues for Manpower Utilization

In 1981, China's working population of the 16 to 60 (55 for female) age class was more than 560 million and will increase to more than 760 million in 2000. Full utilization of such huge manpower is the key to turning China's large population from a liability into an asset and giving full play to the role of people as producers. The most effective way of utilization is full employment. In the next 20 years, an average of 23 million young people will need jobs each year, of whom 3.6 million will be in the cities (4.2 million in the first 10 years, 3.1 million in the next 10 years, and nearly 5 million before 1985) [all figures as published].

Investment is needed for providing jobs. At present, the addition of each worker requires an increase of 10,000 yuan in the fixed-asset value in the heavy industry sector and an increase of 5,000 yuan in the light industry sector. The state cannot bear the placement expenses for all these young people with its present economic strength. Even solution of the problem of employment for urban youths is very difficult. Then what can be done? Ma Yinchu [7456 1377 0443] said way back in 1957: "The general situation in our country is characterized by an abundance of labor and scarcity of funds.... Therefore, our first job is to find employment for the people. We do not need many large industries, but we can set up some small and medium-size enterprises according to local conditions. This is one way to solve the population problem." As we can see, the way to provide full employment is to develop collective economy, to run some labor-intensive trades which do not require much investment--such as light industry to produce articles of daily use, handicrafts, and various service and repair trades--and to promote agriculture, forestry, animal husbandry, sideline production, and fishery intensively and extensively. This was how we solved the problem of employment for more than 33 million urban youths and helped 100 million peasants leave their grain fields to engage in breeding, processing, transportation, and planting cash crops in the 1977-1981 period. This is likely to be an important way to solve the employment problem for a long time.

In the course of providing full employment, we must carefully plan for the transfer of agricultural labor to some other fields. In China, 75 percent of the labor force is in the countryside, leaving only 25 percent for industry and the service trades. This situation must be changed along with China's economic development. Our agricultural labor is now already plentiful, and in 2000, the surplus labor will be even larger--numbering 200 million according to an estimate. If this surplus is not transferred to other sectors in good time, it will mean not only a waste of labor resources, but also an added social burden. In 1980, the annual output value created by each peasant in China was only 520 yuan, and that of each worker was more than 12,000 yuan. It is thus apparent that the transfer of agricultural labor to industry is a necessity.

To give full play to the role of China's manpower, it is also necessary that their scientific and cultural standards be raised. At present, 6 to 7 percent of the rural children cannot enter elementary schools, and 23.5 percent of the total population are illiterate. Their low cultural standard creates not only difficulty in their employment, but also adverse effects on the economic and social developments of the country. It may even hinder the progress of family planning. Since World War II, according to statistics, 40 to 65 percent of the economic growth in capitalist countries was attributed to a higher technical level among the workers and to improved business management. In the 1948-1977 period, Japan's national income increased 62.1-fold; and the per capita national income increased 44.7-fold. An important cause of these increases was intellectual development. Senior secondary education in Japan was popularized in 1979 and by now, 40 percent of the senior secondary students can enter universities. Their higher cultural level has enabled them to absorb and assimilate the advanced foreign technologies and to transform and create more of them. That is why raising people's scientific and cultural standards is inseparable from bringing into play the role of human resources.

C. Strengthen Rural Construction, Develop Small Towns To Prevent Influx of Rural Population Into Cities

Along with the economic development, large numbers of the agricultural population have been transferred to industry and service trades, causing a rapid increase in the urban population. This is a common phenomenon of population development in the world. According to a foreign forecast, the urban population of the world in 2000 will account for 50 percent of the total population (41 percent in 1981). In the countries with a per capita output value of about $1,000 at present, the proportion of urban population is generally 30 to 40 percent, while in the Asian regions with a per capita output value of $800, 28 percent of the population live in cities. If we consider the relationship between the per capita output value and the urban population in foreign countries and assume that China's per capita output value will reach $1,000 in 2000, its urban population will reach 360 million, 30 percent of the total population, and some 200 million more than the present figure. This is a tremendous increase. If all these people were to live in the existing cities, the overcrowding would cause many problems. Therefore, a better way is to step up rural construction, develop small towns, and adopt the policy of separating people from agriculture without separating them from their native villages in order to accommodate the surplus labor locally. There are more than 2,600 small towns in China, each with an average population of more than 23,000 which will increase to 50,000. If these small towns are transformed into political, economic, cultural, and service centers of their own regions, they will be able to accommodate more than 70 million people. Furthermore, there are about 50,000 communes in the country. If communes are used as the core for developing 3,000 to 5,000 small towns and if some small industries, handicraft, and service trades that are locally needed can be started in these small towns, 150 to 250 million people can be accommodated. These towns will then be able not only to absorb the surplus agricultural labor, but also to prevent overcrowding in the cities.

D. Plan for China's Per Capita Consumption Level

Because of its huge population, China's per capita resource, output, and consumption levels are all below the world average. In size, its territory ranks third in the world, but its per capita resource value, being only one-third of that of the world, occupies 118th place. In 1980, China's GNP ranked 7th in the world, but its per capita output value, being only 11 percent of the world's ($290:$2,620), ranked 132d. Its population growth will lead to a reduction in its per capita resources, while the per capita output and consumption levels will rise along with economic development. In 2000, however, it will still be difficult to reach the present average level of the world. According to a forecast, China's per capita grain will increase from some 600 jin of the present to 800 jin, 15 jin less than the world average in 1980. The per capita energy consumption will be raised from 0.6 ton of standard coal in 1980 to 1 ton, less than half of the world level in 1975. (In 1975, world per capita energy consumption was 2.14 tons.) China's per capita consumption of crude steel was 39 kg in 1980 and will be 70 kg in 2000, less than one-half of the per capita amount of the world in 1978 (when the world per capita consumption of crude steel was 164 kg). In 2000, China's per capita GVIAO will be $1,000, only 38.2 percent of the world's per capita amount in 1980. Yet it will not be easy for China to reach these levels. The difference would be even greater in comparison with the industrially advanced countries. In the United States, for example, the per capita amount of output value in 1980 was $11,350; that of grain output, 2,905 jin; that of food consumption, 1,330 jin (against 661.7 jin in China); that of energy consumption, 12 tons of standard coal; and that of crude steel consumption, 711 kg in 1980. It would be hard for China to reach these levels in 100 years. In determining the future consumption level for China's population, we cannot simply take foreign figures as our objectives. We should proceed from the actual conditions of China's population and its industrial and agricultural levels in projecting the consumption level of its population in 2000.

E. Pay Attention to the Possible Problem of Unbalanced Sex Ratio

The sex ratio, according to a scientific analysis, cannot become unbalanced according to the natural population growth, even though there is only one child per couple. The ratio between male and female as shown in the third national census was 106.3:100, and the sex ratio of the infants born in 1981 was 108.47:100, which was basically balanced. However, since some people have been influenced by the feudal idea of preferring male to female and because males are actually superior to females in physical labor, people generally choose to have a son instead of a daughter, if the policy of one child per couple is enforced in family planning. Thus the sex ratio of infants has become unbalanced in some areas. This situation should deserve close attention. On the one hand, we must step up our publicity work and education in order to eliminate the prevalent idea of preferring male to female, and, on the other hand, we must take effective measures, politically, economically, and legally to solve this problem, since such an idea, if allowed to develop, will have serious consequences in China's social development.

F. Pay Attention to Needs of Old People

Because of the lower birth rate and the longer life expectancy of people, the age composition of people will undergo a marked change with the rise in the proportion of old people. This proportion in China is not yet high, being only 5.47 percent in 1981. In 2000, however, the absolute number of people over 65 will be more than 94 million, about 8 percent of the total population (calculated according to the 1.7-birth plan), and the proportion will exceed 15 percent in 2020.

The change in age composition will raise new demands on the society, and these demands will be reflected in clothing, food, housing, travel, cultural entertainment, health protection, and so forth. It will be necessary for the society to take suitable measures to meet their needs. According to the statistics of Singapore in 1976, people over 60 account for 7 percent of the total population. The number of those in need of medical attention account for 15 percent, and 27.4 percent of them have prolonged illnesses. These figures show the different needs for medical and health care by different age structures. Care for the old not only affects the change in economic structure, but also plays a positive role in providing "support for the aged" and bringing happiness in advanced years, but also helps overcome the old idea of "raising sons as a precaution against old age" in promoting family planning.

G. Formulate Long-Range Plans, Set Distant Goals for Population Development

According to calculations by scientists, the earth can only support a limited number of people; if this limit is exceeded, the ecological balance will be upset, the environment will be disturbed, and mankind will be punished by mother nature. For example, because of the encroachment of deserts, the world loses 5 to 7 million hectares of farmland every year. This is the bitter fruit brought forth by the drastic increase in population. It is generally agreed that the world population should be stabilized at 8 to 11 billion, and some people believe that it should be about 6 billion.

Some scientific workers are of the opinion that in order to ensure the availability of needed nutrition for the Chinese people, China's population should not exceed 1 billion. Other scientific workers believe that a Chinese population of 650 to 700 million should be appropriate, according to an analysis of China's resources.

At what level should China's population be stabilized is a question which involves a wide range of issues and exerts profound and far-reaching effects. It is also very closely related to economic and social developments. This task, when accomplished, will serve as a reliable foundation for China to work out its long-range plans for economic and social development, and provide a clear orientation and reliable data for China to formulate a practical, stable, and effective population policy and long-range plans for the exploitation and utilization of human resources. Implementation of a population development plan is no easy matter, since it calls for a coordination of policies and measures in various quarters so that, besides carefully attending to the work of family planning, all government departments can make a concerted effort in introducing a series of measures in legislation, economic planning, medical and public health services, propaganda, education, and employment to promote the planned growth of population. Some good foreign experiences, such as those of Singapore, in population control, should be used for our reference.

Annexed Table 1. Sketch of China's Population Changes

Historic period	Year	Christian era	Population (10,000)
Western Han	Yuanshi 2d	2	5,959
Eastern Han	Yonghe 5th	140	4,915
Eastern Han	Taikang 1st	280	1,616
Sui	Daye 3d	607	4,601
Tang	Tianbao 14th	755	5,291
Northern Song	Daguan 4th	1110	4,673
Yuan	Up to Yuan 27th	1290	5,883
Ming	Hongwu 26th	1393	6,064
Ming	Wanli 6th	1578	6,069
Qing	Kangxi 24th	1685	10,171
Qing	Qianlong 16th	1751	18,181
Qing	Jiaqing 17th	1812	33,370
Qing	Daogang 25th	1845	42,135
Qing	Xuantong 2d	1910	36,815
Republic of China	20th	1931	42,170
Republic of China	36th	1947	45,559
People's Republic of China		1949	54,167
People's Republic of China		1952	57,482
People's Republic of China		1957	64,653
People's Republic of China		1965	72,538
People's Republic of China		1975	91,970
People's Republic of China		1980	98,255
People's Republic of China		1981	99,622
People's Republic of China		1982	101,541

Source: "Renkou Shouce" [Population Handbook] "1981 Zhongguo Jingji Nianjian" [1981 Almanac of China's Economy].

Annexed Table 2. 1982 World Population Statistics Table (1)

Country or region	Estimated population in 1982	Birth rate	Mortality rate	Natural growth rate (annual percent)	Number of years for population to double at current rate	1940 population (million)	Estimated 2000 population (million)	Estimated 2020 population (million)	Infant mortality rate	Total number of births	Population below 15 and above 65	Life expectancy at birth (years)	Urban population	Agricultural labor force (percent)	Per capita GNP ($)
Item number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
World total	4.585	29	11	1.7	40	2.277	6.082	7,678	85	3.9	35/6	60	37	46	2.620
Developed regions	1.152	16	10	0.6	116	798	1.248	1.310	20	2.0	23/11	72	69	13	8.130
Developing regions	3.434	33	12	2.1	33	1.479	4.835	6.368	96	4.6	39/4	57	26	60	680
Developing regions (China not included)	2.434	33	14	2.4	29	949	3.635	4.968	108	5.3	42/3	53	32	60	869
Asia	498	46	17	2.9	24	175	847	1.344	121	6.5	45/3	49	28	66	770
Africa	117	44	13	3.1	22	42	190	265	110	6.5	43/3	54	43	52	1.110
Algeria	20.1	48	14	3.2	22	7.7	36.3	56.8	118	7.4	47/4	56	61	61	1.920
Egypt	44.8	43	12	3.1	22	16.9	66.7	92.4	103	6.0	40/4	55	45	44	580
Libya	3.2	47	13	3.6	20	0.8	6.1	10.0	100	7.4	49/4	55	52	17	8.640
Morocco	22.3	45	14	3.2	22	7.6	37.6	56.6	107	6.9	46/3	55	41	52	860
Sudan	19.9	47	17	3.0	23	8.1	33.1	51.3	124	6.6	44/3	46	25	77	470
Tunisia	6.7	35	11	2.4	29	2.9	9.6	12.4	100	5.6	43/4	58	52	32	1.310
West Africa	150	49	19	3.0	23	47	265	449	140	6.8	46/3	47	22	64	750
Benin	3.7	49	19	3.0	23	1.3	6.6	12.0	154	6.7	46/4	46	14	46	300
Cape Verde	0.3	29	8	2.1	33	0.2	0.4	0.6	82	3.1	36/4	60	20	57	300
Gambia	0.6	49	28	2.1	33	0.2	1.0	1.8	198	6.4	42/2	41	19	78	250
Ghana	12.4	48	17	3.1	22	3.7	21.5	32.7	103	6.7	47/4	48	36	52	420
Guinea	5.3	46	21	2.5	27	2.1	8.8	15.0	165	6.2	43/3	44	19	81	290
Guinea (Bissau)	0.8	40	21	1.9	36	0.4	1.2	1.8	149	5.4	36/4	41	24	83	170
Ivory Coast	8.6	48	18	2.9	24	2.6	15.1	26.0	127	6.7	45/2	46	38	80	1.150
Liberia	2.0	50	20	3.0	23	0.8	3.8	6.7	154	6.9	41/4	53	33	72	520
Mali	7.1	52	24	2.8	24	2.3	12.2	21.4	154	7.0	48/1	42	17	87	190
Mauritania	1.7	50	22	2.8	25	0.6	3.0	5.4	143	6.9	42/6	42	23	83	320
Niger	5.8	51	22	2.9	24	1.9	10.4	18.7	146	7.1	43/3	42	13	89	330
Nigeria	82.3	50	18	3.2	22	24.0	149.7	258.1	135	6.9	47/2	48	20	54	1.010
Senegal	5.9	48	22	2.6	27	2.3	9.7	15.3	147	7.1	44/3	42	33	76	450
Sierra Leone	3.7	46	19	2.6	26	1.6	6.1	9.8	208	6.2	41/6	48	25	66	270
Togo	2.8	48	19	2.9	24	1.0	4.8	8.0	109	6.6	50/4	46	17	68	410
Upper Volta	6.7	48	22	2.6	27	3.1	10.9	17.2	211	6.5	44/3	42	8	82	190
East Africa	141	48	18	3.0	23	50	246	402	112	6.7	46/3	47	15	78	310
Burundi	4.4	45	23	2.2	31	2.0	7.0	11.7	122	6.9	44/2	41	2	84	200
Comoros	0.4	44	14	3.0	23	0.1	0.6	0.9	93	6.2	43/3	46	19	64	300
Djibouti	0.5	49	22	2.6	26	0.1	0.7	1.0	—	—	—	—	74	—	480
Ethiopia	30.6	50	25	2.5	28	13.3	50.6	79.6	147	6.7	43/3	40	14	80	140
Kenya	17.9	53	14	3.9	18	4.8	35.4	59.3	87	8.1	50/4	54	14	78	420
Madagascar	9.2	45	18	2.7	26	3.6	15.2	24.2	71	6.4	46/4	46	18	84	350
Malawi	6.6	51	19	3.2	22	2.4	12.0	20.8	172	7.0	44/4	46	10	84	230
Mauritius	1.0	27	7	2.0	35	0.4	1.2	1.6	32.9	3.1	35/4	64	43	29	1,060
Mozambique	12.7	45	19	2.6	27	4.9	20.7	32.7	115	6.1	45/2	46	8	65	270
Reunion	0.5	25	7	1.8	38	0.2	0.7	0.8	20	3.1	35/4	65	41	29	3,830
Rwanda	5.4	50	19	3.0	23	1.7	9.5	15.5	107	7.0	51/2	46	4	90	200

[continued]

[Continuation of Annexed Table 2 (2)]

Country or region	Estimated population in 1982	Birth rate	Mortality rate	Natural growth rate (annual percent)	Number of years for population to double at current rate	1940 population (million)	Estimated 2000 population (million)	Estimated 2020 population (million)	Infant mortality rate	Total number of births	Population below 15 and above 65	Life expectancy at birth (years)	Urban population	Agricultural labor force (percent)	Per capita GNP ($)
Item number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Seychelles	0.1	28	7	2.1	34	—	0.1	0.1	26.6	4.2	36/6	66	26	19	1.770
Somalia	4.6	46	20	2.6	26	1.6	7.2	12.0	147	6.1	45/2	42	30	80	—
Tanzania	19.9	46	14	3.2	22	6.8	35.3	59.9	103	6.6	46/4	50	13	82	280
Uganda	13.7	48	16	3.2	22	4.3	23.9	39.0	97	6.2	45/3	52	7	81	280
Zambia	6.0	49	17	3.2	22	2.1	11.0	19.1	106	7.0	16/3	48	40	67	560
Zimbabwe	8.0	47	14	3.4	21	2.1	14.7	23.9	74	6.7	51/2	54	20	59	630
Central Africa	56	46	20	2.6	27	24	90	145	122	6.0	44/3	45	30	75	370
Angola	6.8	48	23	2.4	28	3.7	11.3	19.2	154	6.4	44/3	41	21	58	470
Cameroon	8.9	45	20	2.6	26	4.3	13.6	20.9	109	5.7	43/4	46	35	81	670
Central African Republic	2.4	44	22	2.2	32	1.1	3.9	6.6	149	5.9	41/4	42	41	85	300
Chad	4.6	44	24	2.0	35	2.3	6.7	10.4	149	5.9	41/3	40	18	74	120
Congo	1.6	45	19	2.6	27	0.7	2.7	4.6	129	6.0	43/3	46	37	35	730
Equatorial Guinea	0.3	42	19	2.3	30	0.2	0.4	0.7	143	5.7	42/4	46	54	75	—
Gabon	0.7	34	22	1.2	55	0.4	0.9	1.2	117	0.7	34/6	44	36	77	3.680
Sao Tome and Principe	0.1	42	10	3.2	21	0.1	0.1	0.1	49.7	—	—	—	33	—	490
Zaire	30.3	46	19	2.8	25	10.7	50.5	81.3	112	6.1	44/3	46	30	75	220
Southern Africa	34	37	12	2.5	28	12	55	82	98	5.2	42/4	59	47	35	2.120
Botswana	0.9	51	18	3.3	21	0.4	1.6	3.0	83	5.6	45/5	48	20	81	910
Lesotho	1.4	40	16	2.4	29	0.7	2.2	3.3	116	5.9	40/4	50	4	84	390
Namibia	1.1	44	15	2.9	24	0.4	1.8	2.9	120	5.9	44/3	51	45	49	1.410
South Africa	30.0	36	12	2.4	28	10.3	48.9	71.5	96	5.1	42/4	60	50	29	2.290
Swaziland	0.6	48	19	2.8	24	0.2	1.0	1.7	135	6.5	46/3	48	9	74	680
Asia	2.671	30	11	1.9	37	1.245	3.628	4.368	91	4.2	36/4	58	23	59	820
Asia (China not included)	1.671	35	14	2.1	33	715	2.328	2.968	108	5.0	40/4	53	30	67	1.340
Southwest Asia	106	39	12	2.7	26	36	171	260	102	5.6	43/4	58	52	48	3.520
Bahrain	0.4	37	8	2.8	24	0.1	0.7	1.0	53	7.4	41/3	66	78	3	5.560
Cyprus	0.6	22	9	1.2	56	0.4	0.7	0.8	18	2.3	26/10	72	53	35	3.560
Gaza	0.5	51	14	3.7	19	0.3	0.7	0.9	92	—	—	—	90	—	—
Iraq	14.0	47	13	3.4	20	4.0	24.2	37.4	78	7.0	49/4	56	72	30	3.020
Israel	4.1	24	7	1.7	40	1.5	5.8	7.1	14.1	3.5	33/8	73	89	6	4.500
Jordan	3.6	47	10	3.6	19	1.0	6.6	10.3	69	7.3	51/3	60	42	27	1.420
Kuwait	1.5	42	5	3.7	19	0.1	2.9	4.6	39.1	6.1	44/2	69	88	2	22.840
Lebanon	2.7	30	9	2.1	32	1.0	4.0	5.3	41	4.3	43/5	65	76	11	—
Oman	0.9	49	19	3.0	23	0.3	1.7	2.6	128	7.2	46/3	47	7	62	4.380
Qatar	0.3	37	10	2.8	25	—	0.4	0.6	53	6.8	45/3	57	86	—	26.080
Saudi Arabia	10.1	45	14	3.2	22	3.2	20.6	32.7	114	7.3	45/3	53	67	61	11.260
Syria	9.7	46	8	3.8	18	2.7	18.7	30.0	62	7.4	49/3	64	47	32	1.340
Turkey	47.7	33	10	2.2	31	17.8	70.7	95.2	123	4.3	40/4	60	44	58	1.460
United Arab Emirates	1.2	30	7	2.3	30	0.1	1.9	2.8	53	6.8	34/3	62	72	5	30.070
Yemen Arab Republic	5.5	49	24	2.4	28	2.5	8.8	13.5	162	6.8	45/3	41	10	75	460
Democratic Yemen	2.0	48	21	2.7	26	0.8	3.4	5.3	146	7.0	46/3	44	37	40	420

[continued]

[Continuation of Annexed Table 2 (3)]

Country or region	Estimated population in 1982	Birth rate	Mortality rate	Natural growth rate (annual percent)	Number of years for population to double at current rate	1940 population (million)	Estimated 2000 population (million)	Estimated 2020 population (million)	Infant mortality rate	Total number of births	Population below 15 and above 65	Life expectancy at birth (years)	Urban population	Agricultural labor force (percent)	Per capita GNP ($)
Item number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
South-Central Asia	988	38	16	2.2	32	422	1.396	1.787	125	5.5	41/3	49	22	64	220
Afghanistan	15.1	48	23	2.5	27	7.0	26.5	39.3	205	6.9	45/3	40	11	78	—
Bangladesh	93.3	47	19	2.8	25	38.6	149.2	210.1	138	6.3	42/3	43	10	77	120
Bhutan	1.4	43	21	2.2	31	0.7	2.0	2.9	150	6.2	42/3	43	4	94	80
India	713.8	35	15	2.0	35	316.3	967.6	1.196.6	123	5.3	40/3	49	22	64	240
Iran	41.2	44	14	3.1	22	14.0	66.6	95.6	108	6.4	44/4	58	50	37	—
Maldives	0.2	47	14	3.1	22	0.1	0.3	0.4	120	—	45/2	—	11	—	260
Nepal	14.5	44	21	2.3	30	7.7	20.7	28.5	150	6.5	40/3	43	5	93	140
Pakistan	93.0	44	16	2.8	25	31.3	142.7	198.2	126	6.3	46/3	51	28	54	300
Sri Lanka	15.2	29	7	2.2	31	6.0	20.9	25.6	37.1	3.4	39/4	65	27	54	270
Southeast Asia	374	34	12	2.2	32	152	519	658	86	4.8	42/3	53	22	65	580
Brunei	0.2	28	4	2.4	29	—	0.4	0.5	20.0	5.1	34/3	66	76	—	11.890
Burma	37.1	39	14	2.4	29	16.0	55.1	76.7	101	5.5	40/4	52	27	66	180
Cambodia	6.1	38	19	1.9	38	3.0	9.2	11.7	212	—	—	37	14	74	—
East Timor	0.6	44	21	2.3	30	0.5	0.7	1.0	—	—	42/3	42	11	60	—
Indonesia	151.3	34	16	1.7	40	70.5	197.1	236.4	93	4.7	42/2	49	20	65	420
Laos	3.7	44	20	2.4	29	1.6	5.5	7.4	129	6.2	42/3	44	15	74	—
Malaysia	14.7	30	7	2.4	29	6.3	21.3	27.5	31	4.4	40/4	63	29	49	1.670
Philippines	51.6	34	8	2.6	26	16.6	77.3	102.8	65	5.0	43/3	61	36	40	720
Singapore	2.5	17	5	1.2	57	0.8	3.0	3.3	11.7	1.8	28/5	71	100	1	4.480
Thailand	49.8	28	7	2.1	33	15.3	69.9	86.0	55	3.7	42/3	61	14	73	670
Vietnam	56.6	37	9	2.8	25	23.0	80.0	102.3	100	5.3	41/4	53	19	71	—
East Asia	1.204	21	7	1.4	50	635	1.441	1.663	41	2.7	31/6	66	22	54	1.330
China	1.000	22	7	1.4	48	530	1.200	1.400	45	2.8	32/5	66	13	61	290
Hong Kong	5.0	17	5	1.2	59	1.8	6.6	7.4	13.4	2.4	27/8	76	90	1	4.210
Japan	118.6	14	6	0.8	92	72.5	128.4	129.0	7.4	1.8	24/9	76	76	9	9.890
North Korea	18.7	32	8	2.4	29	8.0	27.3	35.1	24	4.5	40/4	62	33	47	—
South Korea	41.1	19	5	1.4	50	15.5	52.8	62.2	34	2.6	38/4	66	55	34	1.520
Macao	0.3	28	8	2.0	35	0.4	0.4	0.5	—	—	38/5	—	98	—	2.020
Mongolia	1.8	38	9	2.9	24	0.8	2.7	3.7	55	5.4	43/3	62	50	50	—
China's Taiwan Province	18.5	23	5	1.8	38	6.0	24.6	29.6	24	2.7	33/4	71	66	30	—
North America	256	16	9	0.7	95	145	286	308	12	1.9	23/11	74	74	4	11.240
Canada	24.4	16	7	0.8	82	11.7	28.9	33.4	10.9	1.8	24/9	74	76	5	10.130
United States	232.0	16	9	0.7	96	133.1	259.0	274.1	11.8	1.9	23/11	74	74	3	11.360
Latin America	378	32	8	2.3	30	128	549	765	67	4.4	40/4	63	65	40	1.910
Central America	95	33	7	2.6	26	27	142	202	60	5.0	43/3	64	60	42	1.840
Belize	0.2	40	12	2.8	25	0.1	0.3	0.3	—	—	45/4	—	49	29	1.080
Costa Rica	2.3	29	4	2.5	28	0.6	3.4	4.6	24.2	3.7	38/4	70	43	35	1.730
El Salvador	5.0	35	8	2.7	26	1.6	6.6	13.5	53.0	5.8	46/3	62	41	41	590
Guatemala	7.7	42	10	3.2	22	2.2	12.7	19.8	70.2	5.7	45/3	59	39	57	1.110
Honduras	4.0	47	12	3.5	20	1.1	7.0	12.0	88	7.1	48/3	57	36	61	660

[continued]

[Continuation of Annexed Table 2 (4)]

Country or region	Estimated population in 1982	Birth rate	Mortality rate	Natural growth rate (annual percent)	Number of years for population to double at current rate	1940 population (million)	Estimated 2000 population (million)	Estimated 2020 population (million)	Infant mortality rate	Total number of births	Population below 15 and above 65	Life expectancy at birth (years)	Urban population	Agricultural labor force (percent)	Per capita GNP ($)
Item number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Mexico	71.3	32	6	2.6	27	19.8	102.3	140.0	56	4.8	42/3	65	67	40	2.190
Nicaragua	2.6	47	12	3.4	20	0.8	4.6	7.9	90	6.6	48/2	55	53	42	720
Panama	1.9	27	6	2.1	33	0.6	2.7	3.6	34	4.1	43/4	70	51	51	1.730
Caribbean	30	27	7	1.8	38	14	41	53	62	3.7	38/6	66	52	39	1.540
Antigua and Barbuda	0.1	16	6	1.1	64	—	0.1	0.2	31.6	2.6	—	—	34	—	1.270
Bahamas	0.2	22	5	1.7	41	0.1	0.3	0.4	31.9	3.5	44/4	69	54	—	3.300
Barbados	0.3	17	8	0.8	82	0.2	0.3	0.4	25.1	2.2	31/9	70	4	17	3.040
Cuba	9.8	14	6	0.8	85	4.6	12.3	14.0	19.3	1.9	36/11	73	65	24	—
Dominica	0.1	21	5	1.6	43	—	0.1	0.1	19.6	—	—	—	—	—	620
Dominican Republic	5.7	37	9	2.8	25	1.8	8.6	12.4	68	5.4	45/3	60	51	57	1.140
Grenada	0.1	24	7	1.8	39	0.1	0.1	0.2	15.4	—	—	70	—	—	690
Guadeloupe	0.3	19	6	1.3	54	0.2	0.3	0.4	26	2.9	32/6	69	43	16	3.870
Haiti	5.1	42	16	2.6	27	2.7	9.4	13.6	115	6.0	41/4	51	25	67	270
Jamaica	2.2	27	6	2.1	33	1.2	2.9	3.6	16.2	3.7	40/6	70	50	29	1.030
Martinique	0.3	23	7	1.6	43	0.2	0.3	0.4	22	2.9	32/6	69	66	16	4.640
Netherlands Antilles	0.2	29	7	2.2	32	0.1	0.3	0.4	25	—	38/6	—	90	1	4.290
Puerto Rico	3.3	23	6	1.7	41	1.9	4.1	4.9	20.4	2.8	31/7	74	70	6	3.010
St Lucia	0.1	32	7	2.4	29	0.1	0.2	0.2	33.0	—	50/5	67	—	—	880
St Vincent and Grenadines	0.1	36	7	2.8	25	0.1	0.2	0.2	38.1	—	—	67	—	—	520
Trinidad and Tobago	1.1	25	6	1.9	37	0.5	1.4	1.6	26.4	2.7	37/4	69	49	12	4.370
Tropical South America	209	33	9	2.4	28	67	313	452	74	4.5	41/3	62	67	37	1.880
Bolivia	5.9	45	18	2.7	26	2.6	9.3	16.7	131	6.6	42/4	49	42	46	570
Brazil	127.7	32	9	2.4	29	41.2	186.7	267.2	77	4.4	41/3	63	68	39	2.050
Colombia	26.6	28	8	2.0	35	9.1	38.3	47.1	56	3.8	46/3	62	60	26	1.180
Ecuador	8.5	42	10	3.1	22	2.5	14.6	23.3	82	6.3	45/4	60	45	45	1.220
Guyana	0.9	28	7	2.1	33	0.3	1.2	1.5	44	3.9	44/4	69	30	22	690
Paraguay	3.3	34	7	2.6	26	1.1	5.4	7.9	47	4.9	45/3	64	40	44	1.340
Peru	18.6	38	11	2.8	25	6.6	30.7	50.2	88	5.3	44/3	57	67	40	930
Suriname	0.4	28	8	2.0	35	0.2	0.6	0.8	30	—	51/4	67	45	18	2.840
Venezuela	18.4	34	5	2.9	24	3.7	28.3	37.4	42	4.3	43/3	66	76	19	3.630
Temperate South America	43	24	8	1.5	45	21	53	61	40	2.9	29/7	68	82	14	2.380
Argentina	28.6	25	9	1.6	43	14.2	34.3	39.3	45	2.9	27/8	69	82	13	2.390
Chile	11.5	22	7	1.5	47	5.1	14.9	18.1	37.9	3.0	34/5	66	81	16	2.160
Uruguay	3.0	19	11	0.8	87	2.0	3.4	4.0	37.4	2.8	27/10	70	84	16	2.820
Europe	488	14	10	0.4	187	377	511	508	16	1.9	23/13	72	69	16	7,880
North Europe	82	13	11	0.2	352	68	84	83	11	1.9	22/14	73	74	5	9,020
Denmark	5.1	11	11	0.0	—	3.8	5.1	4.8	8.8	1,5	20/14	74	84	8	12.950
Finland	4.8	13	9	0.4	187	3.7	4.9	4.7	7.7	1.6	21/12	73	62	11	9.720
Iceland	0.2	20	7	1.4	50	0.1	0.3	0.3	5.4	2.5	28/10	76	88	12	11.330
Ireland	3.5	22	10	1.2	57	3.0	4.1	4.9	12.4	3.2	31/11	73	58	19	4.880
Norway	4.1	12	10	0.2	277	3.0	4.1	4.0	8.8	1.7	23/15	75	44	8	12,650

[continued]

[Continuation of Annexed Table 2 (5)]

Country or region	Estimated population in 1982	Birth rate	Mortality rate	Natural growth rate (annual percent)	Number of years for population to double at current rate	1940 population (million)	Estimated 2000 population (million)	Estimated 2020 population (million)	Infant mortality rate	Total number of births	Population below 15 and above 65	Life expectancy at birth (years)	Urban population	Agricultural labor force (percent)	Per capita GNP ($)
Item number	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Sweden	8.3	12	11	0.1	990	6.4	8.0	7.4	6.7	1.7	20/16	75	83	6	13.520
England	56.1	14	12	0.2	462	48.2	57.1	56.5	11.8	1.9	22/15	73	77	2	7.920
West Europe	154	12	11	0.2	423	113	155	142	11	1.7	21/14	73	81	7	12.600
Austria	7.6	12	12	0.0	—	6.7	7.3	6.8	13.9	1.7	21/15	72	54	11	10.230
Belgium	9.9	13	12	0.1	630	8.3	9.9	9.3	11.0	1.7	21/14	73	95	3	12.180
France	54.2	15	10	0.5	147	41.3	56.4	56.6	10.0	2.0	22/14	74	78	8	11.730
West Germany	61.7	10	12	0.2	—	43.0	59.9	49.3	12.6	1.5	20/15	72	85	6	13.590
Luxembourg	0.4	12	12	0.0	—	0.3	0.3	0.3	11.3	1.5	20/13	71	68	—	14.510
Netherlands	14.3	13	8	0.5	.147	8.9	14.9	14.2	8.6	1.6	23/11	75	88	6	11.470
Switzerland	6.3	12	9	0.2	347	4.2	6.2	5.6	8.6	1.5	20/14	75	58	7	16.440
East Europe	111	17	11	0.6	117	93	120	127	21	2.2	23/12	71	59	28	4.380
Bulgaria	8.9	14	11	0.4	192	6.7	9.5	9.8	19.9	2.2	22/11	72	60	34	4.150
Czechoslovakia	15.4	16	12	0.4	169	12.7	16.6	17.9	16.6	2.1	24/12	71	67	11	5.820
East Germany	16.7	15	14	0.0	—	16.8	16.8	16.3	12.1	1.9	20/16	72	76	10	7.180
Hungary	10.7	14	14	0.0	—	9.3	10.9	10.9	23.1	1.9	21/13	70	46	22	4.180
Poland	36.3	20	10	1.0	71	31.5	40.9	44.7	21.2	2.3	24/10	71	58	30	3.900
Romania	22.6	19	10	0.9	80	15.9	25.6	28.3	31.6	2.5	26/10	70	49	48	2.340
South Europe	143	14	9	0.5	131	103	152	156	19	2.0	25/11	72	61	23	5.090
Albania	2.8	29	7	2.2	32	1.1	3.9	4.8	47	4.2	38/5	69	37	61	—
Greece	9.8	16	9	0.7	98	7.4	10.6	11.3	18.7	2.3	23/13	73	65	38	4.520
Italy	57.4	11	10	0.2	462	43.8	57.4	54.1	14.3	1.7	22/12	73	69	14	6.480
Malta	0.4	15	9	0.6	110	0.3	0.4	0.4	15.5	2.0	24/8	71	83	6	3.470
Portugal	9.9	16	9	0.7	100	7.7	11.2	12.1	26.0	2.2	28/10	70	31	27	2.360
Spain	37.9	15	8	0.7	94	26.3	43.3	47.3	11.1	2.2	27/11	73	64	17	5.350
Yugoslavia	22.6	17	9	0.8	87	16.4	25.1	26.1	32.8	2.0	25/9	69	46	39	2.620
Soviet Union	270	18	10	0.8	88	195	302	346	36	2.3	24/10	69	62	17	4.550
Oceania	24	21	9	1.2	55	11	30	35	42	2.7	31/8	69	72	20	7.600
Australia	15.0	15	7	0.8	87	7.1	18.0	19.9	11.0	1.9	27/9	73	86	6	9.820
Fiji	0.7	30	4	2.6	27	0.2	0.8	1.0	37	3.8	41/2	71	37	41	1.850
French Polynesia	0.2	30	7	2.3	30	0.1	0.2	0.3	—	—	45/2	—	39	—	6.780
New Zealand	3.1	17	8	0.9	80	1.6	3.8	4.3	12.6	2.1	28/9	73	82	10	7.090
Papua New Guinea	3.3	44	16	2.8	25	1.1	5.2	7.6	104	6.3	44/4	50	13	83	780
Western Samoa	0.2	37	7	3.0	23	0.1	0.2	0.2	40	5.8	48/3	65	20	61	—
Solomon Islands	0.2	44	9	3.5	20	0.1	0.4	0.7	78	6.2	48/3	—	11	—	480
Vanuatu	0.1	45	17	2.8	25	—	0.2	0.3	101	—	—	—	—	—	530

Source: "1982 World Population Data Sheet of the Population Reference Bureau, Inc."

Annexed Table 3. Sketch of World Population Development

Time	Population (million)	Annual growth rate (percent)	Time required for population to double (years)
BC 7000-6000	5-10		
AD 1	200-400	0.0	
1650	470-545	0.0	
1750	629-961	0.4	154
1800	813-1,125	0.4	175
1850	1,128-1,402	0.5	130
1900	1,550-1,762	0.5	129
1950	2,513	0.8	83
1960	3,027	1.9	37
1970	3,678	1.9	36
1980	4,415	1.8	38
1981	4,492	1.7	41
1982	4,585	1.7	40

Source: "Population Facts at Hand," 1981.

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Chapter 2. China's Energy Resources, Present and Future

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Summary: Energy is an important material foundation for accomplishing the four modernizations and promoting the people's material and spiritual civilizations. This article will analyze the present conditions and characteristics of China's energy resources and point out the existing problems, forecast supply and demand by the turn of the century, and present some views and suggestions on China's energy policy. [End of summary]

Energy is an important material foundation for developing the national economy and raising living standards as well as a primary factor in economic construction. China's four modernizations program will be largely determined by the scientific development of its energy resources and by their full supply and effective utilization. An analysis of the present conditions and characteristics of China's energy production and consumption, an understanding of the existing energy problems, a forecast of the supply and demand of energy in the best possible scientific way, and working out on this basis a stable and scientific policy that conforms to national conditions will be useful to the attainment of the grand strategic objective of quadrupling GVIAO by the turn of the century.

I. Present Conditions and Characteristics of China's Energy Resources

China's total energy output in 1982 increased 13.7-fold compared with 1952 and was equivalent to 668 million tons of standard coal, ranking fourth among the large energy-producing countries in the world after the Soviet Union, the United States, and Saudi Arabia. China's energy resources consisted of 666 million tons of coal, 102.12 million tons of crude oil, 11.93 billion cubic meters of natural gas, and 74.4 billion kwh of hydropower, 3d, 6th, 12th, and 7th place in the world, respectively.

China's primary energy consumption increased rapidly along with its national economic development. In 1982, the consumption was 619 million tons of standard coal, a 13.76-fold increase over 1952. China had already become the third largest energy consumer in the world. At present, its per capita consumption of commodity energy is 620 kg of standard coal, and in the consumption structure, coal accounts for 73.92 percent; crude oil, 18.67 percent; natural gas, 2.56 percent; and hydropower, 4.85 percent.

In 1981, the energy consumed by China's material production sector accounted for 80.3 percent of the total consumption, while the nonmaterial production sector consumed the remaining 19.7 percent. In the material production sector, the industrial departments consumed 66.5 percent of the energy; the agricultural, forestry, water conservancy, and meteorology departments, 8.6 percent; the communications and post and telecommunications departments, 4.1 percent; the construction industry, 0.8 percent; and the commercial department, 0.3 percent.

The patterns of China's energy production and consumption are shown in the annexed Table 1 and Table 2.

An analysis of the present conditions of energy production and consumption will show the following characteristics.

Coal as the Main Energy Resource: Coal occupies a dominant position in China's energy-production and consumption patterns. This is decided by the rich resources, far-flung distribution and fairly complete assortment of coal. This characteristic will remain till the turn of the century, and will cause many problems in China's energy production, transportation, transfer, utilization, and environmental protection.

Higher Ratio of Industrial Consumption: Compared with the industrially developed countries, the ratio of energy consumption by China's industrial sector is high. In 1980, the industrial sector of the United States, FRG, England, and France consumed only 27.5 to 36 percent of the total volume of consumption. The ratio was 50.4 percent in Japan and 62.9 percent in China. In China's industrial consumption, heavy industry had the larger share, and in 1981, the ratio of energy consumption between light and heavy industries was 18.5:81.5.

Low Per Capita Energy Consumption: Although China's energy consumption is the third highest in the world, its per capita consumption is low. Little energy is used in people's daily life since each urban resident consumes only about an average of 20 kwh a year, while the rural population uses mainly biomass for energy. China's present per capita consumption of commercial energy is only 25 percent of the world's per capita consumption. It is far less than that of the developed countries. Even among the developing countries, China's per capita consumption is considered low.

Great Potential of Energy Conservation: China's energy-utilization efficiency is low, its waste is serious, and its consumption per-unit of output value is high. This shows its great potential for energy conservation. However, this potential is mainly in the industrial sector.

II. China's Existing Energy Problems

A. Inadequate Energy Supply Hinders Its Economic Development

Actually, China's energy problem is caused by its inadequate supply, and there is a serious power shortage in the industrial sector. According to an investigation conducted in 1978, about 30 percent of the productive capacity in industry could not be utilized because of the shortage of energy, with the loss of nearly 100 billion yuan--equivalent to 22 percent of the GVIAO of the same year--as the result. The energy shortage in China is still serious. The oil crisis of the capitalist world began in 1973, and in 1974, the loss in GNP was 3.1 percent in the United States, 11.9 percent in Japan, 4.8 percent in the FRG, 4.8 percent in England, and 2 percent in France. The loss in output value due to the energy shortage in China was even more serious than in the industrially developed countries.

B. Rural Energy Shortage Aggravates Ecological Deterioration

China's rural areas are seriously short of energy. Firewood and straw are mainly depended on for energy in daily use, and each year, more than 400 million tons of firewood and straw and 9 million tons of horse dung were burned. Even so, the peasants in the country are without fuel for an average of about 2 months each year. This serious energy shortage has led to excessive felling in many areas, and the reduction in vegetation was one of the main causes of serious soil erosion and ecological disruption.

C. Irrational Use of Energy Resources Causes Serious Waste

Because of the 10 years of turmoil and the failure of various trades and undertakings to stress economic results, the irrational use of energy was fairly prevalent, resulting in serious energy waste. In the past 20 years and more, 59 percent of all thermopower plants in the country have changed the type or texture of coal they were originally designed for, and each plant burned 5, 6, and sometimes more than 20 types of coal at the same time. The change of coal types affects the efficiency of the power plant and renders its operation difficult. In recent years, China consumed 90 million tons of petroleum each year, but the per capita consumption is only 90 kg, only 13 percent of the world average. Moreover, the petroleum was improperly used, causing serious waste and poor economic results. The amount of petroleum burned as fuel in the past several years accounted for half of the total consumption, and 70 percent of the burned fuel was used on ordinary industrial or power plant boilers. Furthermore, its irrational economic structure and other factors have made China the heaviest energy consumer among more than 100 countries (developed and developing countries included) in terms of per-unit GNP. In 1979, according to statistics, China consumed 25 tons of standard coal per $10,000 of GNP. This consumption was not only higher than in Japan, France, the FRG, England, the United States, the Soviet Union, and other developed countries, but also 2.5-fold that of India.

D. Per Capita Exploitable Reserve Is Low Due to Low-Standard Prospecting

China has rich energy resources in terms of the absolute amount of total energy reserves. Its energy reserve from water resources ranks first in the world, with a theoretical reserve of 680 million kw and an annual generating capacity of 5.9 trillion kwh. Its exploitable water resources amount to 378 million kw, and the annual generating capacity is 1.92 trillion kwh. According to estimates by foreign countries, China's geological coal reserve amounts to 1.44 trillion tons, approximately 13 percent of the total geological coal reserve in the world, ranking third after the Soviet Union and the United States. In 1982, China's coal reserve was 742.1 billion tons, and its geological petroleum reserve could be as much as 30 to 60 billion tons. However, the total resources of a country cannot scientifically represent the degree of its resource abundance, since the scientific indicator should be based on the country's per capita amount. According to data from the 11th World Energy Conference held in 1980 and other sources, China's per capita coal that can be economically exploited was 101 tons, only 40 percent of the world average. The per capita exploitable hydropower was 1,965 kwh, 81 percent of the world average. The amounts of natural gas and petroleum per capita were even lower. It is true that China has abundant energy resources in absolute amounts; however, the per capita amount is low--only one-half of the world average, one-seventh of that of the Soviet Union, and one-tenth of that of the United States.

Although the geological reserve of China's energy resources is large, prospecting standards are not high, economic analysis is inadequate, and exploitable reserve deposits even after careful surveys are not enough. In the case of coal exploitation, for example, the size of mines must be based on 1 or 0.5 percent of the amount of deposit verified after careful surveys; otherwise extraction and excavation may easily be disproportionate. The exploitation of petroleum also has similar problems. In the major foreign oil-producing countries, the ratio between deposit and extraction is 30:1. In other words, in producing 100 million tons of petroleum a year, there must be 3 billion tons of exploitable deposit in reserve. In the case of water-energy resources, there are also problems with geological surveys, river schemes, selection of dam sites, design and research, and other preparatory work.

E. Abundant Water Energy Resources Cannot Be Properly Exploited and Utilization Rate Is Low

Energy from hydropower is economical and nonpolluting. That is why the industrially developed countries, in the course of development, first exploit hydropower, particularly water-energy resources which yield good economic results. At present, water-energy utilization has become one of the important yardsticks of the country's development. In 1980, the total installed capacity of hydropower in the world was 460 million kw, and the total hydropower generated was 1.75 trillion kwh. The utilization rate of water energy was 18 percent. The rate was 36 percent in the industrially developed countries, although some of them had a rate of 80 to 95 percent.

At the end of 1981, China's hydropower installed capacity was 18,285,000 kw. The total generated power was 65.6 billion kwh of which 21.2 percent was hydropower. The exploitation and utilization rate was only 3.4 percent, lower than not only in the industrially developed countries, but also 10 to 20 percent less than in such developing countries as Brazil, India, and Mexico.

F. Equipment in the Energy System Is Obsolete and Utilization Efficiency Is Low

China has more than 200,000 boilers, with an average per-unit capacity of less than 2 ton/hour, and an average of 60 percent efficiency, 15 to 20 percent below foreign boilers. It also has medium and low-pressure thermogenerators of 12 million kw. Most of them were manufactured in the 1950's, and some of them have been in operation for 60 years. These generating units account for 30 percent of the total installed thermogenerator capacity and their coal consumption is 50 percent higher than those of 200,000 kw produced in China. Of the 26,000 varieties of products from China's Ministry of

Machine-Building Industry, 55 percent belong to the 1950's or 1950's, 40 percent belong to the 1960's, and only 5 percent belong to the 1970's. For these and other reasons, such as poor management and the excessive number of small enterprises, the energy-utilization efficiency in 1980 was only 25.4 percent, against 40 to 50 percent in the industrially developed countries.

G. Direct Burning of Coal in Large Quantities Causes Serious Environmental Pollution

In China, dressed coal accounts for only 18 percent of the total output, and the rest is directly burned before dressing or washing. The ash and sulphur contents of coal are high, and each year, about 12 million tons of smoke particulates and 17 million tons of sulphur dioxide, 60 percent and 85 percent of the total national amounts, respectively, are produced. In nearly all cities and industrial zones, the atmosphere's particle density is also higher than the state standard several or more than 10 times. In the northern cities, when heating is needed in winter, the density of sulphur dioxide always exceeds the state standard. Pollution from this source is even more serious in areas when coal with high sulphur content is burned. Now, acid rain has been discovered in more than 20 provinces, cities, and autonomous regions in the Chang Jiang valley and in regions south of this river. In 1979-1980, monitoring of rainwater in Chongqing area showed that the pH value had reached 4.04 to 5.33, which was close to the level of acid rain in Europe in 1966. There are now three acid-rain regions in China: the southwest region (including Chongqing and the surrounding areas of Guiyang), the eastern China region (including Shanghai, Suzhou, Changzhou, and Hangzhou), and the central-southern region (including Changsha, Guangzhou, Nanning, and Guilin). Because of the effects of acid rain, the Chang Jiang bridge, the bodies of public buses, and construction machinery in Chongqing have become corroded and rusty more rapidly, and the mortar layer on the outer surface of concrete structures are corroding in 3 to 4 years, leaving the stones exposed. In the summer of 1982, acid rain fell continuously in Chongqing and part of the paddy rice of 20,000 mu withered.

III. Energy Supply and Demand Forecast

A. Forecast of Energy Requirements

Development of the energy industry requires heavy investment and a long construction period. Therefore, in formulating the state's development projects, we must make a long-range forecast on the supply of and demand for energy so that construction for the energy industry may be started early enough to ensure the stable and sustained development of the national economy.

Energy forecasting must be based on certain hypothetical conditions. Therefore, the forecast data can only show the possible trends and scope of development under given conditions. It is not the same as the targets in state plans. The purpose of the forecast is to provide reference data for the formulation of policies and plans so that planners will not act blindly.

At present, the following four methods are often used in China's energy forecasting:

1. The Method Based on Per Capita Energy Consumption: As shown by the experiences of many countries in the world in economic development, per capita energy consumption in any country or region is an important yardstick of the degree of development in that country or region. If we look at the statistics of per capita energy consumption and the numerous GNP data of the developed and developing countries, and find out the relationships among them, we can deduce the per capita consumption and the demand for energy in China at a certain stage of economic development. Then based on this per capita consumption level, we can study each person's consumption in food, clothing, travel, and utilities; convert the consumed amount into primary energy, and thus forecast the demand in China in 2000.

This method is based on the relationship between per capita consumption and the level of economic development. Therefore, the forecast data have certain good points of reference.

2. The Method of Elasticity Coefficient for Energy Consumption: This represents the ratio between the annual increase in energy consumption and the annual growth of the national economy. Based on the elasticity coefficient of forecasts for natural economic growth in various future periods, it will be possible to figure out China's energy supply and demand in 2000.

The study shows that despite the differences in economic structure, geographical location and weather conditions in different countries, and despite their varying effects on the elasticity coefficient of energy consumption, the development of this coefficient conforms to a certain law: the energy-consumption coefficient of developed countries is close to or less than 1; that of developing countries, more than 1; and the higher the per capita income, the lower will be the elasticity coefficient. In using this coefficient of energy consumption in forecasting energy supply and demand, we should consider the effects of energy conservation to render the forecast more realistic.

In the 1949-1980 period, based on the consumption of commercial energy and the growth of GVIAO, the elasticity coefficient for energy consumption was calculated to be 1.17.

The elasticity coefficient is a simple forecast model for calculating and analyzing the elasticity-coefficient value in various historical periods. Used in analyzing the conditions of energy consumption, it has certain reference value for predicting the volume of future energy demand. Foreign countries generally use it in making long-range forecasts on the demand for energy.

3. The Method of Departmental Analysis: According to this method, forecasting is based on the present conditions of consumption and a hypothetical future development of energy in various departments. At present, China is in a period of economic readjustment, and the changes in the lineup of

departments, product mix, consumption patterns and management and technological levels; population growth, a rise in people's consumption level, energy conservation, and other factors can all affect the result of the forecast. Therefore, we must conduct an analysis of each of the economic sectors and then synthesize the results in forecasting the energy supply and demand before we can study the effects of these factors in detail. This is a forecast method of greater practical value and accuracy.

4. The Input-Output Method: This is a method to analyze the quantitative interdependence among the different sectors of the national economy and the comprehensive ratio between consumption and accumulation. It is not only an important method of economic analysis and forecasting, but also a useful tool for statistical analysis and planning as well as a more scientific way of forecasting.

Use of these forecasting methods yields the following results:

Forecasting method	Macroeconomic index	Forecast conditions	Demand for primary energy in 2000
Method based on per capita consumption	Annual per capita output value $1,000	China's population in 2000 at 1.2 billion; annual per capita energy consumption: 1.5 to 2 tons of standard coal.	1.8 to 2.4 billion tons of standard coal
Elasticity coefficient method	GVIAO four-fold that of 1980	During the Sixth, Seventh, Eighth, and Ninth 5-Year Plan periods, the GVIAO growth rate will be 4.5, 6, 8 and 10 percent, respectively, with synchronous increases in energy consumption.	1,802,300,000 tons of standard coal
		During the Sixth, Seventh, Eighth, and Ninth 5-Year Plan periods, the average annual energy consumption rates will be 2, 1.5, 1, and 1 percent, respectively.	
Departmental analysis method*	Per capita national income four-fold that of 1980	GNP growth rate: 5 percent during Sixth 5-Year Plan; 7 percent during Seventh 5-Year Plan; and 9 percent for both the Eighth and Ninth 5-Year Plans. The energy conservation rate in these three periods will be 2.0 to 2.5, 1.5 to 2, and 1 to 1.5 percent, respectively.	1.78 to 1.86 billion tons of standard coal
Input-output method	3.6-fold increase in per capita national income	Technical management and amount of energy conservation not yet calculated	2.2 billion tons of standard coal

*Forecast result by Qinghai University used

From this we can see that China's energy demand by the turn of the century will be 1.8 to 2.4 billion tons of standard coal.

B. Forecast of Energy Demand in Rural Areas

The amount of demand here includes both the energy for daily use and the energy for production.

In the rural areas, the amount of energy used in daily life is determined mainly by the rural population growth rate and the per capita energy consumption each year. It can be expressed in the following formula:

$$En = M_0(1+a)^n \cdot q_n$$

In this formula, En = amount of energy required in the nth year in rural daily life;
M_0 = rural population in forecast base period;
a-n = average rural population growth rate in n years (percent);
n = forecast period;
q_n = per capita amount of energy required in rural areas in nth year.

Energy is consumed in rural production in agriculture, forestry, animal husbandry, sideline occupation, and fishery. Based on China's statistical data over many years, the amount of energy required for rural production can be fairly accurately predicted according to the following formula:

$$Es \approx 28.3 + 28.3x_1 + 8.5x_2$$

Here, Es = amount of energy required for agricultural production in nth year in terms of 10,000 tons of standard coal;
x_1 = percentage of mechanized farming area in total farmland;
x_2 = output value of rural sideline production (100 million yuan).

Provided that by 1990 the average growth rate of China's rural population will not exceed 1 percent; that methane will form 4 to 6 percent of rural energy composition; that in the 1979-1990 period, the comprehensive converted efficiency of energy used in rural daily life will be raised 42 percent; that the annual average growth rate of agricultural mechanization will remain the same as it is in the first 6 years, and will rise no more than 2 percent in the next 5 years; and that the speed of development of commune- and brigade-run enterprises will be controlled within the 6 to 8 percent limit, then the amount of energy required in China's rural areas in 1990 will be about 345 million tons of standard coal.

C. Feasibility of Energy Production Estimated

Coal: First, by stepping up technical transformation among the existing mines as a prerequisite, the annual coal output of the collieries under central planning will be increased from the present 320 million tons to 400 tons by the turn of the century. Second, by concentrating our resources on building a number of opencut coal mines and at the same time selectively build a number of small and medium-size collieries, we can within the next 18 years start work on the collieries with a combined capacity of 600 million tons and put into operation a portion of them with a combined capacity of 500 million tons. By the turn of the century, the new collieries will produce 400 million tons of coal. Third, with strong support for the development of local collieries, their present output can be raised from 300 million tons to 500 million tons by the turn of the century, by which time, we will be able to plan for a total output of 1.3 billion tons to ensure an actual output of 1.2 billion tons.

Petroleum: Because of the present disproportion between reserve and extraction, the reserve should be increased by several billion tons in order to build up a productive capacity of several tens of million tons to make up for the progressive reduction in the output of the existing oilfields. Therefore, the oil output before 1990 can only be maintained at its present level or slightly increased. After 1990, we will mainly rely on new offshore wells and the oilfields in the west to increase the output. It is estimated that in 2000, China's oil output may reach 165 to 200 million tons.

Electricity: According to a preliminary analysis, the growth of China's power industry in the 1980-2000 period may be 10 percent faster than that of the national economy. The growth rate of the power industry may be 5.5 to 6.5 percent for the first 10 years and 9 to 10 percent for the next 10 years. In 2000, the generated power should be about 1.3 trillion kwh, and the generating capacity should be about 250 million kw, of which, the installed capacity of hydropower will be 80 to 90 million kw with a power output of about 250 billion kwh. The installed capacity of nuclear power will be about 10 million kw with an output of 50 billion kwh.

Summing up, China's production structure of primary energy in 2000 will be as follows:

Type	Actual amount	In terms of standard coal (100 million tons)	Proportion (percent)
Coal	1.2 billion tons (undressed)	8.568	71.4-68.1
Petroleum crude oil	165-200 million tons	2.36-2.86	19.2-22.6
Natural gas	10-15 billion cubic meters	0.133-0.1995	1.1-1.6
Hydropower	250 billion kwh	0.80*	6.6-6.4
Nuclear power	50 billion kwh	0.16*	1.3-1.3
Total		12.0-12.59	100

*Based on the actual consumption of 320 grams of standard coal for every kwh by the turn of the century.

IV. Views and Suggestions

A. Strongly Encourage Energy Conservation in a Broad Sense, Open New Avenues for Energy Conservation

In 2000, the estimated amount of energy required in China will be equivalent to 2.4 billion tons of standard coal, and its production level may reach 1.2 billion tons. In the future, it will have to rely partly on conservation and partly on production at a 50:50 ratio to solve its energy problem.

China has made good progress in energy conservation. In the 1980-1982 period, it saved more than 80 million tons of standard coal, averaging about 26,666,700 tons each year, of which 68.75 percent was saved through the readjustment of the economic structure, and the remaining 31.25 percent through better management, technical transformation and the lowering of per-unit consumption. In 1983, China anticipated a saving of 15 million tons of standard coal. According to the present energy consumption for China's per-unit output value, much can be done in the way of energy conservation. In 1981, for example, only Shanghai, Tianjin, Zhejiang, and Jiangsu consumed less than 50,000 tons of standard coal in producing 100 million yuan in industrial output value, while some others consumed more than 250,000 tons.

Speaking of energy conservation, people would naturally think of raising energy-utilization efficiency through technical transformation and equipment renovation. This is direct energy conservation or energy conservation in a narrow sense, used by industrially developed countries and requiring heavy investment. To open a new avenue for energy conservation, we should strongly encourage energy conservation in a broad sense. In other words, provided the same requirements are met and the same objectives are attained, we should extensively save energy (including direct conservation of energy) and practice total conservation, including indirect conservation, through the saving of manpower, material and financial resources, and natural resources, and through the recovery and utilization of old or discarded materials and the improvement of economic results. In the recovery and utilization of old or discarded materials, 1 ton of scrap steel can be refined into 800 to 900 kg of good steel, resulting in a saving of 3 to 4 tons of good-quality iron ores, 1 ton of coke, 0.5 ton of limestone, and 285 kwh of electricity. Thus, without constructing any mine or consuming any energy, we will be able to obtain the raw material for steel smelting. For the production of 1 ton of paper, 4 cubic feet of timber is required. However, 1 ton of waste paper can be made into 800 kg of good paper, thus saving the timber in addition to 500 kg of coal, 400 kg of caustic soda, and 500 kwh of electricity. The production cost of paper is reduced by 200 yuan per ton. In using 1 ton of broken glass to make good glass, we can save about 1.5 tons of quartz, 1 ton of coal, 400 kwh of electricity and 250 kg of caustic soda, and thus lower the production cost by more than 100 yuan. Furthermore, the recovery and utilization of discarded materials can provide more job opportunities, something which is of great significance to China. Therefore, the most significant feature of energy conservation in a broad sense is the combination of direct and indirect energy conservation, the combination of energy conservation with the improvement of economic results, and the use of limited energy resources to obtain the most economic benefits. Energy conservation in a broad sense requires the raising of the efficiency of the energy system, the saving of various commonly expendable materials, the conservation of unnecessary labor and manpower, the control of population growth, the reduction of circulating funds and land, the increase in output and labor productivity of the units and enterprises (and their equipment), improvement of the quality of products and work, lowering production cost and changing the economic structure and the orientation of products and labor.

Much more can be done in energy conservation in the broad sense. According to a preliminary estimate, the potential of energy conservation in a broad sense in the country is 57 percent, of which, one-third is direct-energy conservation and two-thirds is indirect energy conservation. If this potential can be fully tapped, then by the turn of the century, it will be entirely possible to solve the energy problem by relying partly on conservation and partly on exploitation. Energy conservation in a broad sense is of great significance. As in total quality control, we must carry out total energy control among all the industrial and communications enterprises in the country and develop our energy resources through technical transformation, improvement of management, and the readjustment and reform of the economic structure.

B. Popularize the Use of Fuel-Saving Stoves, Develop Firewood Forests

In 1982, China's rural population accounted for 79.5 percent of its total population, and the agricultural output value accounted for 33.6 percent of the GVIAO. Rural energy occupies an important place in the national economy. In the course of our modernization drive, we must attach great importance to rural energy which, in the short run, has a bearing on agricultural development and the improvement of living conditions for hundreds of millions of peasants, and, in the long run, affects the entire Chinese nation.

At present, many types of energy resources, equivalent to 327 million tons of standard coal are directly consumed in China's rural areas. Of these energy resources, 68.3 percent are biomass (of which 34.4 percent is straw and 31.7 percent, firewood). More than 180 million tons of firewood--40 percent of the energy used in rural daily life, and more than three times the amount of firewood rations supplied--are burned directly each year. Besides, the efficiency of old stoves in the countryside is low--only 10 to 15 percent. The amount of effective energy in the countryside is small. One characteristic of China's rural energy is the use of mainly biomass, such as firewood and straw. The heat efficiency of the rural energy system is low, and the waste is appalling.

Since the state will not be able to increase the supply of commercial energy to the countryside on a large scale this century, we should adopt the policy of adapting measures to local conditions, using many different forms of energy in a mutually supplementary way, making comprehensive utilization, and stressing practical results. We should first take steps to increase supply and curtail consumption and make an effort to alleviate the effects of the shortage in the 1980's and solve the problem in the 1990's. In developing rural energy resources, we should form an energy structure of many different resources, mainly noncommercial resources, and develop firewood forests, methane resources, small hydropower plants, small coal pits and wind and solar energy. At the same time, we should increase the efficiency of cooking stoves so that energy can be used more efficiently.

The popularization of fuel-saving stoves and the development of firewood forests are mutually supplementary and can be adopted throughout the country. They should be treated as a matter of primary importance, since they are the breakthrough point of converting a vicious into a benign cycle in China's agricultural ecology. Fuel-saving stoves have a heat efficiency of 20 to 30 percent, onefold to twofold higher than the old stoves and are able to reduce firewood consumption by 35 to 50 percent. It is an economic way of energy conservation. If all the peasants in the country use fuel-saving stoves, we can save 140 million tons of straw, enough to feed 46 million cows. The nitrogen, phosphorous and potassium contents of this straw are equivalent to the amounts required to produce 1.22 million tons of urea, 1.12 million tons of phosphorous fertilizer, and 1.34 million tons of potassium chloride.

A major measure to develop firewood forests is to plant trees and grass. China has more than 70 million hectares of barren mountains, wasteland, and deserted beaches that are suitable for afforestation, and there is excellent potential for increasing the resources of firewood forests. An effort should be made to afforest 36.66 million hectares including 12.5 million hectares of firewood forests, and to plant 7.5 billion trees in the "four besides." After afforestation, the supply of firewood will be increased by 83 million tons, and with the addition of the supply from the existing forests, will amount to 170 million tons, an adequate supply for 260 million people in the countryside for 1 year. If by that time the rural population has increased to 900 million, the proportion of firewood in the energy in daily use in the countryside will reach 29 percent, and the serious firewood shortage will be initially improved. Supposing that China's forest cover reaches 20 percent by the turn of the century and the amount of firewood that can be rationally supplied every year will amount to 33 percent of the energy in daily use in the countryside, with straw, methane and other resources as supplement, the serious energy shortage in the countryside will be basically solved.

C. Exploit Coal Mines Selectively, Develop Large Opencut Mines and Joint Coal-Electricity Operation

Coal accounts for 70 percent in the structure of China's energy production and consumption, and this situation will remain unchanged till the turn of the century. Therefore, acceleration of coal exploitation is the key factor in guaranteeing China's energy supply.

China has abundant resources for increased coal output. To increase coal output, however, we must first rely on technical transformation of the old mines, and this is even more important for China's eastern region, which is economically developed but short of coal. The intensity of development should be appropriately increased in order to produce more coal and to reduce the pressure on the railways used for transporting coal to the east. However, the resources and productivity of old mines are restricted by geological conditions. Some of them are already too old, with reduced output, and due to be written off. Therefore, the increase in output by relying on the technical transformation of old mines alone can only be limited, and in the future, new mines must be built and counted on as the principal means of large-scale increase in coal output.

Construction of coal mines requires heavy investment and long construction periods. The technology is complex and it takes about 150 to 200 yuan to obtain a productive capacity of 1 ton each year. Constructing a large mine requires approximately 15 years. Therefore, in boosting coal production, we must select the good ones to be exploited. We should first construct some large opencut coal mines--which require shorter construction periods, less manpower, lower costs, but are higher in efficiency and output--in suitable locations. To attain the objective of a 1.2-billion-ton coal output, we must rely on opencut mines to a certain extent. In addition, we must build some pithead power plants near these mines so that the locally produced coal may be used locally for power generation in a joint coal-electricity operation. This method will have great effects in the solution of China's energy problem. China has abundant coal resources in Shanxi, Nei Monggol, Guizhou, Shandong, Ningxia, Anhui, Shaanxi, Henan, Xinjiang, Yunnan, Hebei, and Heilongjiang. All these are key coal bases.

D. Pay Attention to Gasification and Liquefaction of Coal, Bring Atmospheric Pollution Under Permanent Control

In China, 84 percent of its coal is directly burned, and 62 percent is burned in small, widely scattered, and backward equipment with low efficiency and serious pollution. At present, the heat efficiency of civilian stoves is generally about 18 percent, and that of industrial boilers, only slightly more than 50 percent, or 15 to 20 percent lower than in foreign countries. The waste is serious. Most of China's coal is burned directly with little left for research in gasification and liquefaction. Hence the low economic value of China's coal. Huge amounts of coal are being transported before being washed, causing a great waste of transportation capacity. Furthermore, the burning of unwashed coal causes serious atmospheric and environmental pollution.

Gasification and liquefaction of coal means its transformation into fine-quality and clean gas and liquid fuel of high efficiency. Compared with the coal used directly as fuel, they have the advantages of convenience in transportation and use, higher heat efficiency, and less environmental pollution. Therefore, gasification and liquefaction of coal are the basic measures to help China, which relies on coal as the main source of energy, to solve the problems of utilization, economic value, and environmental protection, all related to coal burning. This is an important technical energy policy. According to an estimate, each ton of commercial coal, after being gasified for civilian use, is equivalent to 1.9 tons of coal and can double its heat efficiency. If gas is popularly used in Chinese cities, the urban residents can save 40 to 60 percent of their coal, a saving of more than 10 million tons of commercial coal, and the environmental pollution in the cities as a result of burning coal can be basically controlled. Gasification does not require fine-quality coal. China's huge and widespread deposits of lignite and coal of low viscosity can serve this purpose. Furthermore, improvement of backward coal-burning techniques, research and development of coal gasification and liquefaction, and the cycling of gas and steam in gas burning are also very important in raising the use value and power-generating efficiency of coal, and improving its economic results.

E. Step Up Surveys of Oil and Gas Resources To Increase Petroleum Output

The major problems now faced by China in oil production are insufficiency of reserve deposits with a low reserve-extraction ratio, an increase in the water content of oil, difficulty in maintaining a stable output, and diminishing economic results.

In oil production in the world, a reserve-extraction ratio of 30:1 is considered to be high and increased oil output is then possible, as is the case in the Middle East. A ratio of 20 to 25:1 is considered to be medium, and increased output is still possible, as in the case of the Soviet Union. If it is below 20:1, stable output cannot be maintained, as in the case of the United States. China's reserve deposits are not enough and a great effort is required to maintain a steady output. One of the main reasons is that for more than 10 years, greater attention was paid to exploitation than to survey. All great oil-producing countries in the world attach great importance to the advance work of oil exploitation. The ratio between the number of drills used in discovering oil and in extraction after prospecting is generally 1:1, whereas in China, it is 1:10. Therefore, we must correctly handle the relationship between survey and discovery of oil, on the one hand, and the exploitation of oil, on the other, and pay greater attention to geological survey so as to increase both the reserve and the output and to maintain steady development.

In the future, the sources of increased reserves of oil and gas will be as follows: The eastern region, including the drainage basin of the Songhua Jiang and the Liao He, now China's major oil-producing area with a reserve of nearly 10 billion tons. In this region, there are hopes for us to increase oil reserve deposits by several billion tons from already known oilfields, by expanding and deepening old oilfields, and by conducting new surveys to discover new oilfields and gasfields. As to offshore oil and gas resources, China is now cooperating with foreign countries and using foreign funds and technology in surveying offshore fields. In addition to those already contracted to foreign companies, there are still large sea areas where new fields can be discovered. The large basins in the northwest are important regions for the increase in reserve deposits of oil and gas and are the future hope of China's oil industry. Besides, there are large areas of high value with a wide distribution of carbonatite in the Paleozoic marine facies of Guizhou and Guangxi, all waiting for a breakthrough in exploration. Therefore, in the near future, China's main attention should be directed to the basin of northern China, the Songhua Jiang and the Liao He plain, and the Sichuan basin for the replenishment and enlargement of the oil reserve and to ensure that the output of oil and natural gas is maintained at the present level. At the same time, geophysical prospecting should be stepped up in the prospective areas of oil and gas in the western region so as to ascertain the geological laws for oil in the search for reserve bases. Great efforts should also be made to look for natural gas resources, especially fields where coal has been transformed into gas, in order to meet the requirements of long-range development in the petroleum industry.

F. Guarantee the Scope and Investment in Hydropower Projects Now Under Construction

In the Soviet Union, water resources are fairly plentiful, but their regional distribution is very uneven. China has similar conditions in water resources. In 1957, the utilization rate of water resources in the Soviet Union was 3.6 percent (not much different from China at present). In 1975, however, it reached 14.8 percent, meaning a threefold increase, in 18 years. China, as we can see, may possibly quadruple the utilization rate of its water resources in 2000 with a hydropower installed capacity of 80 to 90 million kw, a hydropower output of 250 billion kwh, and a utilization rate of 13 percent.

At the end of 1980, the size of hydropower projects under construction in the Soviet Union was 28.1 million kw, and the plan for the 1981-1985 period calls for an increase in installed capacity of 12.4 million kw, and an average capacity of 2.48 million kw will be put into operation. The ratio between the scope of projects under construction and the capacity to be put into operation was 11:1. At present, the scope of hydropower projects under construction is rather small in China. In 1980, it was only 9.31 million kw, and this will obviously affect the speed of hydropower development in the future. To greet the large-scale development of hydropower in the 1990's, many projects should be started in the 1980's so that the scope of projects under construction will be gradually increased to 20 to 30 million kw. Only thus can we catch up with the future needs.

If China's hydropower is to be quadrupled to reach 80 million kw by the turn of the century, the growth rate will be 7.18 percent each year. In the 1980-1995 period, the total increase in hydropower installed capacity will be 56.59 million kw. Based on the calculation of 1,200 yuan/kw, a total investment of 67.9 billion yuan is required. In the 1981-2000 period, the total increase in power generation will be 2,546,500,000,000 kwh, and at the profit rate of 30 percent, the total profit will be 76.4 billion yuan, more than enough for the investment return.

The source of funds is a big problem in the realization of these visions. The solution of the problem for hydropower is as follows: Hydropower has the characteristics of both primary and secondary energy. Therefore, besides investing in the secondary energy of the power industry, of which hydropower is a part, the state should allocate special hydropower development funds as primary energy investment, in the same way funds are invested in the construction of coal mines and oilfields for primary energy, and make every effort to develop hydropower successfully. Local funds can be used in combination with state funds to build hydropower stations, upon completion of which, the profits can be shared in proportion to the investments. The localities will have priority in the use of the electricity. Since the development of hydropower can help conserve mineral fuel, part of the funds allocated by the state for oil conservation and other projects should be diverted to hydropower construction. In addition, we can issue bonds or obtain long-term and low-interest loans for hydropower construction. Foreign loans may also be obtained on long terms with low interest or on other preferential terms.

Annexed Table 1. China's Primary Energy Output in 1949-1982

	Primary energy output (standard coal, 10,000 tons)					Primary energy output structure (total = 100)			
Year	Total	Coal	Crude oil	Natural gas	Hydro-power	Coal	Crude oil	Natural gas	Hydro-power
1949	--	2,312	17	--	--	--	--	--	--
1952	4,871	4,714	62	1	94	96.8	1.3	--	1.9
1957	9,860	9,357	204	9	290	94.9	2.1	0.1	2.9
1962	17,174	15,114	805	161	494	91.5	4.7	0.9	2.9
1965	18,796	16,571	1,583	146	496	88.2	8.4	0.8	2.6
1970	30,908	25,286	4,291	382	949	81.8	13.9	1.2	3.1
1975	48,537	34,429	10,788	1,177	2,143	70.9	22.3	2.4	4.4
1980	63,726	44,285	15,139	1,898	2,404	69.5	23.8	3.0	3.77
1982	66,800	47,552	14,593	1,587	3,068	71.18	21.8	2.38	4.59
1982 increase over 1952 (-fold)	13.71	10.09	235.37	1,587	32.68				
Average annual growth rate, 1952-1982 (percent)	9.1	8.0	20.0	27.8	12.3				

Annexed Table 2. China's Primary Energy Consumption 1949-1982

Year	Energy consumption (100 million tons of standard coal)	Energy consumption structure (total = 100)			
		Coal	Petroleum	Natural gas	Hydropower
1949	0.23	--	--	--	--
1952	0.45	--	--	--	--
1957	0.96	92.40	4.50	0.09	3.1
1962	1.65	89.35	6.48	0.93	3.24
1965	1.89	86.64	10.07	0.63	2.66
1970	2.92	81.14	14.40	0.93	3.53
1975	4.53	72.19	20.70	2.52	4.59
1980	6.03	71.80	21.05	3.15	3.90
1982	6.19	73.92	18.67	2.56	4.85
1982 increase over 1952 (-fold)	13.76				
Average annual growth rate, 1952-1982 (percent)	9.1				

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Chapter 3. Forecast for China's Farmland Development in 2000

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Summary: Farmland is an important resource for developing production and safeguarding the people's food supply. This article will analyze the major characteristics of China's farmland and describe how it has been damaged by soil erosion, the encroachment of deserts, salinization, and nonagricultural use. It will also forecast its possible future development and suggest certain important measures for its preservation. [End of summary]

China has a territory of 9.6 million square km (14.4 billion mu), equivalent to 6.4 percent of the world's land surface, and the third largest territory after those of the Soviet Union and Canada. However, if its 1 billion population is taken into account, the per capita area is only 14.4 mu, much less than the world average of 45.3 mu (based on a population of 4.5 billion). If only the area suitable for agriculture, forestry, and animal husbandry is counted, China's per capita land is only 7.6 mu. Even all the available wasteland is reclaimed, it still cannot possibly be more than 10 mu. It is only one-quarter to one-third of the world's per capita land of this type. China now has about 1.49 billion mu of farmland (or 2.26 billion mu according to space telemetry by U.S. artificial satellite) and a per capita area of 1.5 mu. This is less than the world's per capita area of 4.65 mu and far less than that of those countries with large territory and small population (such as the Soviet Union which has 3,405,000,000 mu with 12.9 mu per capita, and the United States which has 2,798,000,000 mu with 12.7 mu per capita) and even less than some countries with large population and small territory (such as India with 2,482,000,000 mu and 3.7 mu per capita).

Farmland is the basic natural condition for developing China's agricultural production and safeguarding the supply of food to its people. Here is a preliminary exploration of the present conditions, the trend of development of China's farmland, and the problems which deserve our attention.

I. Characteristics of China's Farmland

A. Small Farmland Area, Not Much Wasteland To Be Reclaimed for Agriculture

China now has 1.49 billion mu of farmland, only 10.4 percent of the national territory, and 200 million mu of wasteland suitable for agriculture. This wasteland is spread out in Heilongjiang, eastern Nei Monggol and Xinjiang. After reclamation, the net increase in farmland can only be 100 million mu, which, together with the existing area, will total 1.6 billion mu, about 11 percent of the national territory, with 1.6 mu per capita, an increase of only 0.1 mu from the present 1.5 mu per person. Even though all the land that is suitable for agriculture, forestry, and animal husbandry in China is reclaimed, the per capita area can only be 7.6 to 10 mu, only 60 to 79 percent of that of the United States (12.7 mu) and 59 to 77 percent of that of the Soviet Union (12.9 mu).

B. Very Uneven Distribution of Farmland Areas

Considering all the climatic, biologic, soil, topographic, and hydrologic factors of a regional or nonregional nature, we can generally divide China into three major zones, namely, the humid and semihumid eastern monsoon zone, the northwestern arid zone, the inland arid zone, including the Qinghai-Xizang plateau of the west. About 92 percent of China's farmland is concentrated in the southeastern humid and semihumid monsoon zone. It was precisely the uneven distribution of farmland in the historical period of thousands of years--when agriculture was the main occupation--that led to the uneven distribution of China's population. According to current statistics, the agricultural population of southeastern China accounts for 95 percent of the national total. This uneven population is not likely to change much for a fairly long time to come. However, since there is not much potential to be tapped in farmland, any further population growth will increase its pressure on this land, causing it to shrink and deteriorate in a vicious environmental cycle.

C. Poor Natural Farmland Conditions

Of the 14.4 billion mu of land in the country, slightly over one-quarter is within 500 meters above sea level, while nearly three-quarters is at a higher elevation. Of the latter portion, land with elevations of 1,000 to 2,000 meters and more than 3,000 meters accounts for about 25 percent each. Different elevations have different temperatures. Normally, temperature averages 0.5 to 0.6°C lower for every 100 meters above sea level, with reduced cumulative temperature and shorter growth period. Extremely cold weather is harmful to agriculture, forestry, and animal husbandry. Furthermore, if the gradient of mountain slopes is steep and the earth layer is thin, work of all types will be difficult, and if the resources are not properly used, soil erosion will occur and the ecological balance may easily be upset. Of China's farmland, only one-third has high and stable yields. Fields with low yield also account for one-third, including about 60 million mu of waterlogged lowland, 100 million mu of saline-alkali soil, more than 100 million mu with soil erosion, and 180 million mu of low-yield red soil.

Soil, rainfall, irrigation potential, growth seasons, and other natural conditions are the important factors with decisive effects on the quality of farmland. India is able to achieve grain self-sufficiency with some surplus for exports mainly because of its superior natural conditions. On India's land surface, low terrains with gentle slopes form the major portion, while plains account for 43 percent of the national territory and terrains at elevations of 300 to 900 meters and terraces with low hills account for another 27.7 percent. These land conditions are certainly better for agricultural production than in many other countries. India's total farmland now amounts to 2,482,000,000 mu, about 50 percent of the national land area, and the per capita farmland has reached 3.6 mu. Another advantage is that except for a few areas, everywhere in India enjoys an average temperature of 24 to 27°C, and the lowest temperature in three-quarters of India does not go below 0°C. Thus, India has several harvests each year.

D. High Proportion of Grain Farmland, Already High Multiple Crop Index

In 1981, China's grain crops occupied more than 1.1 billion mu, approximately 74 percent, of its farmland. The multiple crop index reached 150 percent, with a sown area of more than 1.7 billion mu, 13 percent of the total acreage in the world. The total grain output was 650 billion jin, 18 percent of the world output. This shows the fairly high productivity of China's land, where average grain output per unit area has already surpassed the world average. However, the grain output has been irrationally raised with extensive planting over steep slopes, destroyed forests, abandoned herding areas, and reclaimed land in lakes and seas, and through the lowest possible utilization rate of land. Furthermore, the preservation of land received little attention, since planting of land-improving crops has been reduced, fertilizers are insufficiently applied, and the land is overused. For example, the soybean is an important land-improving crop as well as having been an important source of protein for the people for a long time. In 1957, the soybean acreage reached 190 million mu in the country with a total output of 20.1 billion jin. Later, it was considered to be a "low-output crop" and downgraded, so that in 1977, the acreage was reduced to only 100 million mu with a total output of 13.3 billion jin, lower than in 1957 by 47.5 percent and 33.5 percent, respectively. There has also been a marked decrease in the acreage of miscellaneous beans everywhere. Green manure crops have been developed in some areas, but have been ousted by grain crops in others, resulting in an obvious reduction in soil fertility. For example, the Sanjiang plain of Heilongjiang was a fertile land with black soil and was reclaimed shortly after the founding of the People's Republic. After years of extensive planting with low output, and because greater importance was attached to the use than to the preservation of land, the organic contents of the soil was reduced from a range of 6 to 11.5 percent to one of 3 to 5 percent, and the granular structures fell from 60 to 90 percent down to 30 to 50 percent. Furthermore, the excessively high multicrop index caused the deterioration of soil. This situation may hopefully improve after the enforcement of the output-related responsibility or contract system.

II. Damage to China's Farmland

China's farmland has suffered serious damage for many years.

A. Encroachments on Farmland

Expansion of cities, rural construction, energy exploitation, and the building of transportation networks are the four major competitors against agriculture for the use of land. Along with the population increase and economic development, their encroachment on farmland has become an unavoidable phenomenon. In the United States, about 15 million mu of farmland has been lost every year because of the expansion of cities, highways, airports, and pipelines. In the large U.S. cities, 80 percent of the land is good land of grade 1 to 3 and according to an estimate, each additional person means the loss of 2 mu of farmland. A former U.S. undersecretary of agriculture once said with alarm: "Where can we get food with the loss of farmland? Can asphalt ever become the final production of land?!" Land encroachment is also quite serious in

China. Despite the exhaustive attempts to expand farmland since the founding of the People's Republic, the available area is only 1.49 billion mu, not much more than the 1,468,000,000 mu in 1949. The fact is that although 488.98 million mu of wasteland was reclaimed in the 1949-1977 period, farmland was reduced by 468.99 million mu for various reasons, resulting in a net increase of only 20.49 million mu. Then in the 23 years from 1957 to 1980, about 500 million mu of farmland was taken up for capital construction, rural housing, and other uses, with an average reduction of about 22 million mu, equivalent to the farmland area of one Fujian Province each year. Even with the addition of 320 million mu of reclaimed wasteland in these 23 years, there was still a net decrease of 1.8 million mu, equivalent to the total area of farmland in five provinces and autonomous regions, namely, Shaanxi, Gansu, Ningxia, Qinghai, and Xinjiang. The reduction in farmland is particularly noticeable in Liaoning, Henan, and Beijing. The farmland in Liaoning Province has been reduced from 70.19 million mu in the early post-liberation period to 56.4 million mu in 1980, a reduction of 1,186 mu each day for more than 30 years. In Henan, the farmland was also reduced from 130 million mu to 107 million mu, with an average reduction of more than 1,900 mu each day. Beijing had 9,118,000 mu of farmland in 1952. In 1978, it was down to 6.44 million mu, a reduction of about 30 percent. At present, China's cities, factories and mines occupy more than 1 billion mu, or about 7 percent of its total land area. Compared with that of agricultural land, this proportion is quite high.

There has been quite a rush in rural housing over the past several years. The use of land for building houses and villages got out of control, and much farmland was wasted. In the 1978-1981 period, the area of houses built in the rural areas amounted to 1.5 billion square meters, equivalent to an increase in living space of nearly 2 square meters for each of the 800 million peasants in the country. In many villages, people have indiscriminately built brick or tile kilns only for personal convenience and regardless of the consequences, and converted some good farmland into wasteland. According to statistics, there are now more than 1,800 such kilns in the country, and one-third of them are obtaining their clay from farmland for making bricks and tiles.

In planning and carrying out capital construction, layouts are extensively dispersed, and the land requisitioned is more than actually used. Sometimes, the land is requisitioned too far in advance and then left totally unused. Serious waste has also been caused by the use of good land when inferior land could have served the same purpose.

Another unfavorable outcome of the decrease in farmland and increase in population is that the number of provinces sending out grain and the amount of grain being sent out are decreasing while the amount of grain being transported into other provinces and the number of receiving provinces has increased.

B. Soil Erosion

Since the liberation, the area of soil erosion in China has increased from 1.74 billion to 2,225,000,000 mu, a 33.6-percent increase in 30 years, now account for one-sixth of the national territory. Each year, more than 5 billion tons of silt flow into the seas from the rivers, meaning that the thickness of the soil layer of all the farmland in the country is reduced by about 1 mm each year. In this way, the amount of nitrogen, phosphorus, and potassium lost is equivalent to more than 40 million tons of chemical fertilizer.

China's soil erosion is particularly serious on the loess plateau and in the hilly regions of the south.

The loess plateau of the northwest covers eight provinces and regions, namely, Qinghai, Gansu, Ningxia, Nei Monggol, Shaanxi, Shanxi, Henan, and Shandong, with a total area of about 810 million mu and a population of nearly 40 million. The present area of soil erosion reaches 645 million mu, about 80 percent of the total area, including 420 million mu that is seriously affected. The modulus of soil erosion in the loess plateau of northwestern China was as high as 20,000 to 30,000 tons per square km, while in some areas of the United States where soil erosion is also serious, the modulus is only 4,000 to 5,000 tons per square km. The Huang He has the largest amount of silt among all rivers in the world, because each cubic meter of water in this river contains more than 37 kg of silt. The average amount of silt passing through Sanmenxia to the lower reaches and into Bohai was 1.3 billion tons each year shortly after the liberation; now, it has increased to 1.6 billion tons, of which, 400 million tons are silting the 800-li riverbed. The riverbed is thus raised 10 mm each year and is now 2.3 meters, and in some locations even more than 10 meters, above the land surface across the dike. This portion of the river has now become an "overhanging river." The Huang He's present normal level is as high as the top of Kaifeng's iron tower. The flood prevention capacity of the Huang He is continuing to weaken, and now, a race seems to be going on between the rising riverbed and the rising dikes. This is a very precarious situation, because if the dike should ever burst, the consequences would be unthinkable.

The hilly regions of the south include Yunnan, Guizhou, Guangxi, Guangdong, Hunan, Hebei, Jiangxi, Anhui, Fujian, and Zhejiang, altogether 10 provinces and 1 autonomous region, and most of them belong to the Chang Jiang drainage basin. The total area is about 2.7 billion mu including about 240 million mu of farmland. In the Chang Jiang drainage basin, 540 million mu of land, 20 percent of the total area, is subject to soil erosion. The amount of eroded soil is 2.4 billion tons each year. Each cubic meter of the Chang Jiang water contains 1 kg of silt, the fourth largest silt content in the world, and each year, 500 million tons of silt is discharged into the sea. Soil erosion here is not so serious as in the loess plateau; however, the red and yellow soil layer in the south is not as thick as on the loess plateau, and is therefore in no condition to stand prolonged erosion. The amount of silt washed away by the Chang Jiang and the Huang He alone is more than the equivalent of 6 million mu of fertile land. Under normal agricultural conditions, only 2.54 mm of surface soil can be formed every 100 years, or only 0.25 tons per mu each year.

C. Encroachment of Deserts

China deserts (including the Gobi Desert and the land which has been transformed into deserts) expand very rapidly. Since the liberation, China's desert area has doubled, from 1 billion mu to 1.95 billion mu, and now accounts for about 13.6 percent of the national territory. There are also 100 million mu of farmland and one-third of the natural grassland now being threatened by the encroaching deserts in varying degrees. According to incomplete statistics, about 97.26 million mu of China's land has become deserts, including 8.76 million mu (in Xinjiang, Nei Monggol, Ningxia, northern Shaanxi, and Gansu's Hexi Corridor) which has been so transformed by wind and the shifting sand dunes. Ill-considered land reclamation has also turned 39.6 million mu of land into deserts (in Nei Monggol, Ningxia, Jilin, Liaoning, and Heilongjiang), while destruction of the natural vegetation transformed 33.9 million mu of solid or semisolid sand dunes (in Xinjiang, Nei Monggol, and Gansu) into deserts. Excessive water consumption in the upper reaches has also turned 15 million mu into deserts at the lower reaches (such as the lower reaches of the Talimu He in Xinjiang). From these figures, we can see that 91 percent of the new deserts were manmade because of irrational economic activities. According to the statistics of some people, the area of deserts has increased about 40.5 million mu in the past 15 years, of which, indiscriminate felling accounted for about 11.25 mu, 28 percent; ill-considered land reclamation, 9.9 million mu, 24 percent; excessive grazing, about 7.95 mu, 20 percent; the building of factories, mines, and transportation facilities, about 3.6 million mu, 9 percent; and the advancing sand dunes, accounting for the rest.

About 90 percent of China's new desert area is located in the semiarid region east of longitude 107°E, with the area's eastern tip stretching into the semihumid zone, including eastern Nei Monggol and Ih Ju League, northern Shaanxi and the western part of the three northeastern provinces. It consists mainly of natural grasslands and some farmlands. The remainder of about 10 percent is spread out in the arid wilderness west of longitude 107°E. This area was originally the oases in deserts or along the river banks at the lower reaches of rivers at the fringe of deserts. They have also become deserts because of sandstorms and the incursion of sand dunes.

D. Salinity of Soil

Nearly 100 million mu of China's total farmland is salinized. This area is spread out in the hinterland at the northwest, the Huang He-Huai He-Hai He mountains and plains, the northwest loess plateau, the northeast plain and hilly areas, and the coastal region.

The northwestern hinterland is where salinity is most serious. At present, 8.9 million mu, 15.2 percent of the farmland in that region, has been salinized. The salinized areas cover more than 20 million mu, 5.4 percent of the farmland in the Huang He-Huai He-Hai He plain and mountainous regions; more than 7.8 million, 4.4 percent of the farmland in the northwestern loess plateau; and 11 million mu, 4 percent of the farmland in the northeastern hilly and plain regions. In other regions, such as the basins in Sichuan and Shaanxi, the salinized areas generally amount to less than 1.6 percent of the farmland.

III. Forecast for China's Farmland Development

For short- and medium-range forecasts on farmland, we can construct a regression model with several related factors, such as soil erosion, desert encroachment, salinization, nonagricultural use of land, and agricultural policy. The model is as follows:

Farmland = f (soil erosion, desert encroachment, salinization, peasants' average income, state capital construction investment, and agricultural policy)

The changes in China's farmland area in the 1949-1981 period (see attached table) is the outcome of these factors combined. If we conduct a regression analysis based on a series of observations, the construction of a regression model can broadly reflect the trend of changes in China's farmland and help us make a medium-range forecast on China's farmland.

In the 1949-1956 period, China's farmland area rapidly increased from 1,468,000,000 to 1,677,000,000 mu. This was a special historical period of economic recovery, or the healing of the wounds of war after years of fighting against the reactionary rule to which Chinese people had been subjected for a long time. The rapid increase in farmland area symbolized a new development brought about by the new land policy after the founding of new China. Obviously, the same situation will not reappear in China. Therefore, it should be excluded from the series of observations.

In forecasting China's farmland in the 1957-2000 period, two different situations may be taken into consideration:

A. We should consider the large-scale reduction during the Great Leap Forward in industry, agriculture, and capital construction (including farmland capital construction, water conservation, and public utilities) around 1958 as well as the increase in the nonagricultural use of land following the rapid industrial and agricultural development, and anticipate a fairly large reduction in China's farmland in 2000 as the lower limit of the forecast. Based on the result of the regression equation, China's farmland area in 2000 will be 1,368,000,000 mu.

B. After 1969, there was not much fluctuation in China's farmland area. Based on this situation, we may make a more optimistic estimate. By calculation, China's farmland area will be 1,428,000,000 mu.

China had a population of 1,008,180,000 in 1982, according to the census. In 2000, if the population can be kept below 1.25 billion (according to the 2-birth plan), China's farmland area will be only 1.0944 mu per person at the lower limit and 1.1424 mu at the upper limit. This will bring to the Chinese people a series of social, economic, and ecological problems.

IV. Views and Suggestions

A. Launch an Extensive Campaign of Farmland Protection

As mentioned earlier, the situation of loss and degeneration of farmland in China is very serious, and this situation is still continuing. It must be publicized in the same way we do with family planning so that it will become familiar to every household. Dr Barney, editor of the "Global 2000 Study" of the United States, said: "In China, there can be nothing more important than soil preservation," "What is flowing in the Huang He is not silt, but the blood of the Chinese nation. The average amount of flowing silt is as high as 1.6 billion tons each year. This is no longer a matter of ruptured capillaries; it is bleeding from some main artery." Brown, a renowned U.S. agroeconomist, connected the loss of topsoil with world famine, and warned: "Farmland in the world has been reduced by one-fifth, and about one-third of the remainder is being lost through soil erosion. If we do not strictly control the erosion of topsoil and population growth, the world will face a famine." In 1937, U.S. President Roosevelt said in a long letter to all governors: "Any country that destroys its own soil will ultimately destroy itself." After all, all Chinese people must first fully realize the importance of protecting the farmland and extensively publicize this important task. At present, this point is repeatedly stressed by the leading comrades of the Central Committee. In the Fourth Session of the Fifth NPC, Premier Zhao Ziyang said in his government work report: "The state policy should be to treasure and use every inch of land rationally." However, the implementation of this policy calls for great effort.

As long ago as 1935, the United States began the work of soil preservation on a national scale, and the Congress organized 600,000 young people into "natural resources perservation groups" for the purpose of saving the land. Now, the work of protecting farmland is still highly regarded in the United States. In the agriculture offices of all states and counties and in workshops, vehicles and refrigerators of all farmers' homes, this slogan is being displayed: "You will have no food if you have no soil." Many pedologists have on their epaulets some symbol of the great significance of soil preservation. It implies that as long as there are water and soil, agriculture and animal husbandry will flourish. The personnel of U.S. agrotechnology demonstration stations is not large (only three persons), but their responsibility is very heavy. They must promptly popularize advanced agricultural technology and frequently visit farmers at their homes to provide guidance on growing grass, water and soil conservation, fertilizer application, and the preservation of the natural environment. The agrotechnology stations also frequently help young people (9-19 years of age) in various forms of activities, such as short-course studies in soil and ecology and field training, so as to instill a love of water, land, and grassland. Of course, these activities are quite popular in some other countries as well. In China, since the launching of the ethics and courtesy month activities, the social atmosphere has taken a turn for the better, and after the beginning of the tree-planting drive, the area of verdure has been greatly increased. Therefore, we must consider the launching of an all-people campaign for the preservation of farmland, water, and soil, in order to check the unhealthy trend of indiscriminate use of land and to preserve the conditions of the Chinese people's survival.

B. Unified Control, Strict Prohibition of Indiscriminate Use of Farmland

Farmland must be under unified state control, or it will be difficult to check the practice of using land indiscriminately. To enforce unified control, we must first conduct a thorough survey and evaluation of China's land resources and then exercise control according to different circumstances. Japan formulated the "Methods of Planning for the Utilization of State Land" in 1974 and then the "Plans for the Utilization of State Land" in 1976. Based on the human need for land, this plan divided the national territory into five categories of utilization, namely, for building cities, agricultural areas, forestry areas, state parks, and nature preserves. Each category must be reserved for its own special use. In planning industrial and urban development, Western Europe commonly adopts the system of strict control and "zoning," under which there will be distinct demarcations between industrial zones, urban residential zones, and agricultural zones, and the land reserved for agricultural use cannot be used for nonagricultural purposes. Of course, encroachment on farmland would be sometimes unavoidable. Yet some policies must be worked out to encourage the use of less farmland or the use of inferior land.

Some of China's policies are not all reasonable. According to the "Regulations of Land Requisition for State Construction" promulgated in 1958, for example, the scale of compensation, as we can see now, is too low, and the difference between compensation for the good land in the suburbs and for the poor land in remote areas is almost negligible. Furthermore, after a one-time compensation payment by the state, the unit using the land will be free of any economic obligation. This practice would encourage the units to request more and better land. If higher compensation is paid for good land and the unit using the land has to pay higher taxes every year, while those units using nonarable land in remote areas are given certain special economic benefits, the policy will provide some incentive for farmland conservation. Sometimes, certain economic policies may be originally correct; but if the land problem is not carefully considered with due measures taken in publicizing and implementing these policies, the consequences may be very serious. For example, some commune members may build houses or ancestral tombs on the "responsibility plots" or "private plots" assigned to them. Again, if the cities and villages jointly run factories, some localities may want the cities to contribute money and technology, while the peasants contribute land and labor. If suitable measures are not taken and the situation is allowed to develop unchecked, a great deal of farmland in the suburbs may be used in this way.

C. Active Control and Recovery of Damaged Land

This is an important way to tap China's farmland resources. At present, China is trying hard to bring the deserts and soil erosion under control. For example, Nei Monggol, Shaanxi, and Ningxia have already worked out their plans for the general control of the Mu Us Desert, and many experts have advanced useful proposals, and achieved certain success concerning construction in the arid zones and the control of the loess plateau in the northest. On the whole, however, the improvement is fairly slow, and so far, rehabilitated districts have not appeared in large areas. Furthermore, in many areas, improvement cannot keep pace with destruction.

In this respect, foreign countries have many experiences of good reference value for us. To help the peasants transform the deserts, the Egyptian Government specially established the Ministry of Land Reclamation, worked out plans for controlling the deserts, and increased the allocation of funds for this purpose every year. The plan for transforming the deserts included the "New River Valley Plan," the development of the "Liberation Province," the reclamation of saline land around the lakes near the coast, the "afforestation of Sinai," and other long-range plans. The government built 500 villages in 11 desert-control regions, and 500,000 peasant households totaling 2 million people have moved into the new villages. In Egypt, more than 18.9 million mu, 55 percent of the farmland, was affected by salinization in varying degrees. After more than 10 years of continual control, it has been alleviated or brought under control, with some exceptions, in most areas. The main method is the use of underground pipes for drainage, to carry out a "general control," and to exercise proper supervision over irrigation.

The United States has a complete set of work methods and systems for soil preservation. The public agencies concerned were set up on a permanent basis and strengthened step by step, and the investment was increased year after year with due attention to economic results. Therefore, the preservation project was a success. It has a total of 8,000 small districts requiring government assistance and 3,000 of them have solved their problems, while plans are being worked out for another 2,000. In 1977, 90 percent of the farm households in the United States had taken various soil-preservation measures on 4.7 billion mu, 93 percent, of the farmland and grassland. The United States has also adopted effective measures for restoring land in the mining areas. To preserve the land resources and environmental ecology, the U.S. Department of Interior has established an "Opencut Mine and Land Reclamation Executive Bureau." This bureau has laid down seven requirements which include the restoration of exploited land in order that it can serve its original purpose or be put to better use; preservation of the topsoil in opening opencut mines so that the soil can be reused for the restoration of the land later. It also calls for the restoration of the original contour and appearance of the worksite of an opencut mine after its exploitation. Therefore, China should include the question of recovering damaged land on the agenda of its important meetings, invest certain amounts of manpower and material resources, and adopt practical and effective measures to expedite the recovery. This will be a very effective way of alleviating the contradiction between population and farmland.

On the whole, the preservation of farmland involves many issues including China's political stability, economic development and ecological balance, and we must pay full attention to this matter without further delay. Otherwise, it will not only create havoc for our offspring, but also cause great harm to our own generation.

Note: The forecast in this chapter was prepared by Comrade Sun Benchuan [1327 2609 0248] of the second yuan of the Second Ministry of Machine-Building Industry--Author.

Annexed Table 1. Changes in China's Farmland Area (10,000 mu)

Year	Total	Compared with previous year	Year	Total	Compared with previous year
1949	146,822		1967	153,846	- 591
1952	161,878	6,371	1968	152,330	-1,516
1953	162,793	915	1969	152,190	- 140
1954	164,032	1,239	1970	151,702	- 488
1955	165,235	1,203	1971	151,049	- 653
1956	167,737	2,502	1972	150,922	- 127
1957	167,745	8	1973	150,319	- 603
1958	160,351	-7,394	1974	149,868	- 451
1959	156,869	-3,482	1975	149,562	- 306
1960	157,292	423	1976	149,082	- 480
1961	154,966	-2,326	1977	148,871	- 211
1962	154,355	- 611	1978	149,084	+ 213
1963	154,090	- 265	1979	149,247	+ 163
1964	154,968	878	1980	148,958	- 289
1965	155,391	423	1981	148,556	- 402
1966	154,437	- 954			

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Chapter 4. Forecast of China's Balance of Water Supply and Demand in 2000

by Liu Shiwei [0491 0013 0251]

Summary: Water is a vital material for human survival and the lifeblood of modern industrial and agricultural production. This article will discuss the characteristics of China's water resources and their effects on industrial and agricultural developments. Then, based on its population growth and national economic development plans, a forecast is made on the precarious situation regarding water supply and demand in 2000, and particularly the serious water shortage in the drainage basins of the Huang He, the Huai He, and the Liao He, and the effects of this shortage on the people's living conditions and the development of industry and agriculture. From now on, therefore, we must view the problem of uneven distribution of resources from an appropriate strategic standpoint and take active measures for its solution. [End of summary]

Water is not only a vital material for human survival, but also the lifeblood of modern industrial and agricultural production. From early history, we can see that the ups and downs of economic development in any region and the prosperity or poverty of any city were often closely related to the situation regarding water sources and their exploitation. It was China's water conservation projects for the rivers and weirs 2,000 years ago that promoted agricultural development in the Chengdu plain, Sichuan; and more than 1,000 years ago, it was the Grand Canal that brought economic prosperity to Jiangsu, Zhejiang, and northern China. These projects provide eloquent proof of the correct handling of the relationship between water resources and economic development by China's ancient people.

Compared with other economic resources, water has some special characteristics of its own. Being widely spread out, for example, it is regenerative, mobile, low in price, and liberally used. Because of these characteristics, people have for a long time regarded it as some inexhaustible material like air. Hence the very irrational exploitation, utilization, and management of water resources.

Because of population growth and the increase in economic activities in the world in recent years, some countries or regions have experienced serious water shortages, which brings to people a new awareness--the awareness that water is a precious resource which is limited in quantity and cannot be replaced by any other material.

I. Characteristics of China's Water Resources and Their Effects on Economic Construction

After atmospheric precipitation, water becomes river and stream runoff and ground water after its evaporative loss. Runoff and ground water, which are replenished every year, become what we call water resources.

The amount of precipitation in China is about 6,007,700,000,000 cubic meters. After a 45-percent deduction for evaporative loss, China's average water resources totaled 2.721 trillion cubic meters for many years (1956 to 1979), including an average of 2.638 trillion cubic meters of river and stream runoff and an average of 771.8 billion cubic meters of groundwater replenishment. These two replenishable sources constitute about 688.8 billion cubic meters [all figures as published].

According to an estimate, the total amount of runoff in the land portion of the globe is about 47 trillion cubic meters. In this respect, China ranks sixth in the world after Brazil, the Soviet Union, Canada, the United States, and Indonesia.

China's water resources have the following several salient features:

Low Per Capita Water Resources: China's river-stream runoff accounts for 5.6 percent of the total world runoff, but its population accounts for 22 percent of world population. Its per capita amount of runoff is 2,563 cubic meters, not only lower than the five countries already mentioned, but also below the world average of 10,800 cubic meters per person, of which China's is only one-quarter.

Very Uneven Distribution of Water Resource Regions: About half of China's territory is located in an arid region with an annual precipitation of less than 400 mm. In the drainage basins of the Heilong Jiang, the Liao He, the Hai He and Luan He, the Huai He, the various inland rivers, and the Ertix He, which combine to account for 63.7 percent of the national territory, their water resources account for only 20 percent of the national total, while in the southern drainage basin of the Chang Jiang, the Zhu Jiang, the rivers in Zhejiang, Fujian, and Taiwan, and in the southwest, which combine to account for only 36.3 percent of the national territory, their water resources account for 80 percent of the national total.

Very Uneven Seasonal Precipitation: In most regions, the seasonal distribution of precipitation is uneven, since the precipitation on the whole is mostly confined to the rainy season of 2 to 4 months. In this season, 50 to 60 percent or even 70 to 80 percent of the rainfall takes place. The runoff relies mainly on rain for replenishment, and the seasonal runoff varies very greatly. In the high-water season, it brings disaster, and in the dry seasons, it is so little that the water may even cease to flow.

At the same time, the precipitation varies greatly in amount every year, and even more so in the regions where the amount is usually small. For example, precipitation in a year of abundance is generally 1.5 to 3 times that in a year of scarcity in southern China, whereas in the north, it is 3 to 6 times more. Therefore, there is also some similarity in the annual variation of runoff. A comparison between the maximum and the minimum amounts of several years will show that in the rivers of the south, the maximum is generally less than 3 times the minimum, while in the north, it is generally more than 6 times. In the branches of the Hai He and the Huai He, the difference can be as much as 10 to 20 times or even more.

Table 1. National Statistics of Water Resources by Drainage Basins

Drainage basin	Total precipitation (100 million cubic meters)	Annual runoff		Ground water replenishment		Total water resources	
		100 million cubic meters	Percentage of national total	100 million cubic meters	Percentage of national total	100 million cubic meters	Percentage of national total
Heilong Jiang	4,358	1,192.1	4.51	551.6	7.14	1,388.5	5.10
Liao He	1,915	486.2	1.84	229.42	2.97	581.41	2.14
Hai He and Luan He	1,775	291.8	1.10	276.58	3.58	405.86	1.49
Huang He	3,917	687.55	2.60	422.60	5.48	762.37	2.80
Huai He	2,839	766.5	2.90	453.58	5.88	1,024.35	3.76
Chang Jiang	19,162	9,600	36.39	2,130.71	27.60	9,600	35.28
Zhu Jiang	8,945	4,738.6	17.96	960.04	12.44	4,738.61	17.41
Rivers in Zhejiang, Fujian, and Taiwan	4,342	2,714.2	10.28	574.73	7.45	2,714.2	9.97
Rivers in the southwest	7,846	4,684.4	17.76	1,114.67	14.44	4,684.4	17.26
Ertix He	186	103.3	4.23	58.89	0.76	103.80	0.38
Inland rivers	4,980	1,115.5	0.39	945.35	12.24	1,206.54	4.44
Total, northern drainage basins	19,781	4,643	17.60	2,938	38.06	5,473	20.11
Total, southern drainage basins	40,295	21,737	82.40	4,780	61.94	21,737	79.89
National total	60,076	26,380	100	7,718	100	27,210	100

Since water is necessary for economic development, the characteristics of China's water resources, as mentioned earlier, must have an impact on its economic development. This impact is shown in the following respects:

1. Relationship Between China's Water Resources and Its Agricultural Development

The regional differences in China's water resources is very large and ill-matched with its farmland distribution. The water resources in the four regions of the south accounts for 79.89 percent of the national total, while their farmland area accounts for only 37.8 percent. In the north, the water resources account for only 20.11 percent of the national total, while the farmland area accounts for 62.2 percent of the national total. The situation is even more typical in the drainage basins of the Hai He, Luan He, and Huai He. Here both the population and the farmland amount to 27 percent of the national total, but the water resources are only 5.25 percent (including 1.49 percent for Hai He and Luan He drainage basin, and 3.76 percent for the Huai He drainage basin). These ill-matched distributions of water and land resources have brought extreme difficulties to China's agricultural development.

Table 2. Comparison Between Water and Land Resources in the North and South

	Total water resources		Farmland area	
Drainage basin area	100 million cubic meters	Percent	100 million mu	Percent
Four areas in the south	21,737	79.89	5.70	57.8
Six areas in the north	5,473	20.11	9.36	62.2
Including: Heilong Jiang	1,389	5.10	1.84	12.2
Liao He	581	2.14	0.98	6.5
Hai He and Luan He	406	1.49	1.66	11.0
Huang He	702	2.80	1.96	13.0
Huai He	1,024	3.76	2.73	15.7
Inland rivers (including Ertix)	1,311	4.82	0.73	4.8
National total	27,210	100	15.06	100

2. Relationship Between China's Water Resources and Industrial Development

Water and mineral resources, particularly coal, petroleum and iron, are the basic materials for national economic development. However, the distribution of mineral resources is not appropriate for the distribution of China's water resources. For example, China's coal, petroleum, and iron resources are mostly located in the water-deficient north, while the south with rich water resources is short of coal, petroleum, and iron for economic development. These distributions have their adverse effects on China's industrial development.

3. Difficulty in Exploitation and Utilization of China's Water Resources

The uneven temporal and spatial distribution of water resources has added to the restricting factors in the exploitation and utilization of China's limited water resources. For example, since the precipitation of the year is mostly confined to the rainy season, there must be sufficient storage facilities for the full utilization of water resources. However, the development of water-storage facilities are restricted by economic, engineering, and geological conditions. The drastic variations in precipitation in different years further increased the difficulties of water resource exploitation.

II. Present Conditions of Water Supply and Demand

Since the liberation, in order to meet the requirements of industrial and agricultural development and to raise the people's living standards, China has undertaken tens of thousands of large, small and medium-size projects of all types for the storage, drainage, and pumping of water. These projects, if utilized, can supply about 465.95 billion cubic meters of water for various sectors of the national economy each year. According to a preliminary calculation of the data of various provinces and cities, China now actually uses a total amount of 476.7 cubic meters of water (in 1978-1979), about 17.5 percent of its total water resources. This amount consists of 434.8 billion cubic meters of surface water and 41.9 billion cubic meters of ground water, 91.2 percent and 8.8 percent of the total amount, respectively.

In China, water is used mainly in industry and agriculture, and by the city population. The heaviest water user was the agricultural sector which used 87.9 percent of the total amount. From the early 1960's to the late 1970's, water was mostly used for irrigation in agriculture and the rate of consumption increased 3.57 percent each year.

The rate of consumption has increased much faster in industry than in agriculture. From the 1950's to the late 1970's, the average increase rate was about 6 percent per year. The increase rate of water consumption in the cities was also higher than in agriculture. However, since urban utilities did not receive much attention over a long period, water supply for the cities is now far from adequate for the urban residents' needs. In recent years, great improvement has been made in this respect, and water supply to the cities has rapidly increased.

Table 3. Current Water Consumption in China

Unit: 100 million cubic meters

	Agricultural consumption				Industrial consumption			City consumption	Total consumption
Drainage basin area	Irrigation	Humans and animals	Others	Subtotal	General industry	Thermopower	Subtotal		
Heilong Jiang	106	6	29	141	37			9	182
Liao He	99	6	13	118	23			4	145
Hai He and Luan He	328	7	--	335	39			5	379
Huang He	219	5	1	225	21			4	250
Huai He	534	22	4	560	17			4	581
Inland rivers	440	4	8	452	10			1	463
Chang Jiang	1,275	34	--	1,309	71			16	1,396
Rivers in Zhejiang and Fujian	254	7	--	261	8			4	273
Zhu Jiang	693	43	--	736	36			7	779
Rivers in the southwest	31	3	--	34	1			--	35
Ertix He	22		2	24					24
National total	4,001	137	57	4,195	263	260	523	49	4,767

Note: Figures in this table do not include Taiwan.

Table 4. Available Water Supply From Existing Water Conservancy Facilities

Unit: 100 million cubic meters

	Utilization of river/ stream runoff			Volume of ground water extracted				
Drainage basin area	River and stream runoff	Available volume	Exploitation and utilization rate	Amount of ground water replenishment (plain)	Volume of shallow layers	Volume from deep layers	Utilization rate of water from shallow layers	Available water
Heilong Jiang	1,192	180	15.1	395.3	29.3		9.9	209.3
Liao He	486	125	25.7	123.3	46.6		31.4	171.6
Hai He and Luan He	292	203	55.8	166.0	145.1	28.1	37.4	348.1
Huang He	688	190	39.2	130.5	63.5		48.6	253.5
Huai He	766	518	45.4	359.7	105	6.8	29.2	629.8
Chang Jiang	9,600	1,375	16	122.8	(7.0)		(5.6)	1,382
Rivers in Zhejiang, Fujian, and Taiwan	2,714	365	18.0		2.4			367.4
Rivers in the southwest	4,686	36	0.8					36
Zhu Jiang	4,738	813	17.2	43.6	2.6		6.0	815.6
Inland rivers	1,116	372	33.3	486.5	22.7		4.7	394.7
Ertix He	103	24	20.4	13.4				24
National total	26,380	4,201	15.9	1,741	423.6	34.9	24.3	4,659.5

A comparison of the present consumption with the available amount of water will show that water consumption has already been excessive, particularly in some drainage basins of the north. Actually, the situation is even more serious than reflected in the table figures. Since the 1970's, long spells of drought have occurred in the north, and the consumption figures in the stastistics have been curtailed and are therefore less than the actual amounts required. The available amounts of water are based on the capacities of the water conservancy facilities. Because of the drought in the drainage basins of the north, the volumes of water actually available is far less than the supply capacity. Hence the serious water shortage problem.

The environmental pollution which is becoming more serious every day has also aggravated the water shortage. According to incomplete statistics from a survey of 798 townships in 10 drainage basin areas of the country, the daily discharge of waste and contaminated water in 1979 amounted to 78 million cubic meters, which would add up to 28.5 billion cubic meters a year. More than 98 percent of this waste and contaminated water was directly discharged into water bodies before being properly treated. Particularly in the north, where the volume of runoff is small, the discharge of contaminated water in huge quantities would greatly raise the ratio of this water to the runoff.

This ratio was as high as 1:9 in the Hai He and Luan He drainage basin. This only refers to the average amount of contaminated water in the entire drainage basin. If we look at the city suburbs during a dry season, the ratio would be appalling. Such a situation may even produce serious effects on the south with its rich water resources. For example, in 1958, the ratio between runoff and contaminated water in the Huangpu Jiang, the source of water supply for China's greatest city Shanghai, was 13:1 to 10:1; now, it is 6.1:1, and even worse during dry seasons. The large quantity of contaminated water discharged has rendered part of the water unfit for use, thus further upsetting the balance of water supply and demand.

The serious shortage of water supply has produced adverse effects on our economy, environment, and people's living conditions. Because of inadequate water resources, many areas and cities in the north have drawn water excessively from underground and lowered the water table. This has caused the subsidence of the land surface. In the capital's suburbs, for example, a funnel-shaped water table of 1,000 square km has been formed and its center has sunk 20 meters.

Water shortages in recent years have brought very serious losses to industrial and agricultural production and to people's livelihood in some regions. Some plants in industrial cities, such as Tianjin, Dalian, and Qingdao, had to suspend operation for this reason. In Dalian alone, the industrial output value in 1982 was reduced by 600 million yuan. Furthermore, in order to maintain industrial production and the daily consumption of inhabitants, the state was forced to spend huge sums of money to draw water from the Huang He. Again, in Xiaozhen, Tianjin's traditional paddy rice area, nearly all the paddy fields were transformed into low-yield dry fields for lack of water.

III. Forecast of China's Water Supply and Demand in 2000

In forecasting the future demand for water, many foreign countries have in the past adopted the trend-extrapolation method. In recent years, however, more and more localities have adopted more rational methods, including regression analysis and system engineering. There will be some difficulty for these methods to be adopted in China because of its backward water management and incomplete historical data. Therefore, this can only be based on the plans for national economic development, the data of population growth and the present water-consumption level in making a rough estimate of the volume of water required for consumption in 2000 with the aid of foreign reference materials.

Agricultural Consumption: Agricultural consumption of water is related to many different factors, such as the varieties of crops, their output, the techniques of irrigation, and the water charges. China now has 730 million mu of irrigated area which uses 400.1 billion cubic meters of water, averaging 551 cubic meters per mu. This consumption is slightly lower than the world average of 632 cubic meters. In 2000, China's irrigated area may be increased to 930 million mu. However, considering the tight supply of water and the serious waste in its use for irrigation as well as the advanced technology of irrigation which will be developed in the future, and other factors, the water consumption per unit irrigation area should not be further raised in 2000. Thus, based on an irrigation area of 930 million mu, the total amount of water required for irrigation will reach 511.5 billion cubic meters in 2000, an increase of 27.5 percent over the present amount. The use of water for humans and animals in the countryside will also be increased. in addition to the population growth, we should also think of the higher living standards of peasants, and water consumption in meeting these requirements will definitely increase faster than in irrigation. It is estimated that in 2000, the use of water on humans and animals will reach 31.5 billion cubic meters, a 1.3-fold increase over the present volume. In addition, there will also be increases in other miscellaneous items, and it is estimated that in 2000, the total water consumption in agriculture will reach 553 billion cubic meters, a 32-percent increase.

Industrial Consumption: At present, the average amount of water consumed per 10,000 yuan of industrial output value in the country is 622 cubic meters. In the past, the water consumption per 10,000 yuan of industrial output value continued to drop each year.

	1952	1957	1965	1975	1978	2000
Industrial output value (100 million yuan)	343	704	1,394	3,219	4,228	22,600
Water consumption (100 million cubic meters)	49	79	119	214	263	1,130
Water consumption (cubic meter/ 10,000 yuan of output value)	1,428	1,122	853	664	622	500

According to the data in this table, it can be estimated that in 2000, the amount of water consumed per 10,000 yuan of output value will be lowered to about 500 cubic meters. In view of the present waste and the future structural change in China's industrial sector, there is potential for water conservation. Thus in 2000 when the GVIO reaches 2.26 trillion yuan, the total amount of water to be consumed will reach 113 billion cubic meters, or 4.3 times the present amount.

Consumption by Thermopower: According to data provided by the departments concerned, the installed capacity of China's thermopower industry will be increased from the present 52.25 million kw to 150 million kw in 2000. The use of water for thermopower is mostly for cooling. The amount used is large, but can be recovered and reused. At present, the average amount of water per kw in China is about 500 cubic meters. The difference in consumption between the enterprises of the south and of the north is quite large, in some cases 20-fold larger. Therefore, there is good potential for water conservation in the thermopower industry. Based on the consumption of 300 cubic meters per kw (a 40-percent saving from the present 500 cubic meters), water consumption in 2000 for thermopower will reach 45 billion cubic meters, a 73-percent increase over 1978.

Consumption in Cities: At present, urban residents in China consume an average of 68 liters of water each day. The world average is 150 liters and in the United States, it is as high as 440 liters. The consumption level of China's city residents is thus far below the world average. However, along with the rise of living standards for urban residents, per capita water consumption will increase by a wide margin. In 2000, it will reach the present world average level, namely 150 liters per person, which cannot be called high. By that time, the urban population will be 300 million, and the water consumption for the cities will reach 1.62 billion cubic meters, 3.3-fold the present amount.

Thus in 2000, the total water consumption in China (including consumption in agriculture, industry, hydropower, and for the cities) will reach 727.2 billion cubic meters, a 52.5-percent increase over 1978. At present, the amount used in China accounts for 17.5 percent of the total water resources, and in 2000, it will rise to 26.7 percent.

Table 5. Growth in China's Demand for Water by 2000

Unit: 100 million cubic meters

Item		Present (1978)	2000	Increase over present (percent)
Agriculture		4,195	5,530	31.8
including:	Irrigation	4,005	5,115	27.7
	Humans and animals	137	315	129.9
	Others	53	100	88.6
Industry		263	1,130	329.6
Thermopower		260	450	73.0
Cities		49	162	230.6
Total		4,767	7,272	52.5

In 2000, China's per capita water consumption will be increased from the present 476 cubic meters to 606 cubic meters. Compared with the developed countries in the world, its consumption level will still be low, and equivalent to that of Japan and France in the 1960's.

Whether the water supply and demand can be balanced in 2000 will be determined by water resource, geological, geographical, technical, economic, and many other conditions. According to estimated results in all provinces, when P = 75 percent throughout the country (equivalent to a dry year of medium severity, P is the guarantee rate), the water supply capacity in that year will be 649.9 billion cubic meters. The situation of water supply and demand in 2000 in various drainage basins is shown in Table 6.

Table 6. China's Water Supply and Demand in 2000 (P = 75 percent)

Unit: 100 million cubic meters

Drainage basin area	Water supply capacity	Water quantity required				Surplus or shortage	
		Agri-culture	Indus-try	Urban con-sumption	Total		
Heilong Jiang	545	404	89	8	501	+85	-43
Liao He	248	248	57	12	334	+ 2	-88
Hai He and Luan He	339	424	76	14	514		-175
Huang He	290	285	31	7	323	+ 9	-44
Huai He	672	783	56	10	49		-117
Chang Jiang	1,893	1,875	249	42	2,166	+207	-480
Rivers in Zhejiang, Fujian, and Taiwan	500	351	37	12	400	+111	-12
Zhu Jiang	1,371	956	99	15	1,070	+301	
Rivers in the southwest	74	69	8	1	78	+10	-14
Inland rivers	541	520	32	2	554	+20	-30
Ertix He	26	25			25	+ 1	0
National total	6,499	5,957	734	123	6,814	+747	+1,063

Note: Figures for demand do not include requirements for thermopower plants in some provinces, cities, and autonomous regions.

From this table, we can see that when P = 75 percent, in some drainage basins, particularly those of the Huang He, the Huai He, the Hai He, and the Liao He, the water supply is seriously inadequate. Since the degrees of accuracy of these statistics are not the same, the conclusions as to the amounts of surplus or shortage may not be accurate. However, the qualitative conclusions should be correct. Of course, the causes of water shortage are not all the same. For example, in the lower reaches of some rivers in the south, the shortage is often caused by the failure of water supply projects to keep pace with current developments. As long as engineering work is suitably improved, this problem can easily be solved. However, in some areas, the shortage is attributed to the lack of local water resources. Since the degree of exploitation and utilization is already very high, the problem of their water shortage will be more complex and its solution will take more time. Therefore, preparations should be made well in advance.

IV. Water Supply and Demand in the Hai He-Luan He Drainage Basin Analyzed

There is not much significance in discussing the balance of water supply and demand in China as a single entity, because its water comes from different sources. If there are no water-transfer projects that involve more than one drainage basin, regulation among different drainage basins would be impossible. We must conduct a concrete analysis on the situation of water supply and demand in each drainage basin before we can solve the problem. The Hai He-Luan He drainage basin is one of the important regions of China that is politically, economically, and culturally developed. At the same time, this is where the contradiction between water supply and demand is most acute.

By analyzing the present and future conditions of water resources and the balance between supply and demand, we can see fairly concretely the impact of water resources on national economic development.

The Hai He-Luan He drainage basin includes Beijing, Tianjin, and most of Hebei as well as parts of Shanxi, Liaoning, Henan, Shandong, and Nei Monggol, with a total area of 319,000 square km, 3.3 percent of the entire national territory. Its population and farmland also account for about 10 percent of the national totals, and its GVIAO accounts for about one-eighth of the national total.

A. Characteristics of Water Resources in this Region

1. The conditions of water resources are the worst here. For many years, its average river/stream runoff has been 29.2 billion cubic meters; the average replenishment of ground water, 27.67 billion cubic meters; and its total water resources, 40.6 billion cubic meters, 1.5 percent of the national total and the lowest among the large drainage basins in the country. Water resources per capita amount to 409.9 cubic meters, only 15 percent of the national average and 4 percent of the world average.

2. The annual precipitation in different years is very uneven. Precipitation in this region is extremely concentrated, as 80 percent of it occurs in July and August. For example, the amount of precipitation in 10 days of August 1963 in the middle and upper reaches of the Zhangwei He and the Ziya He reached 10.2 billion cubic meters, 306 percent of the average amount in the Hai He drainage basin for many years. The variations in different years are more marked in this than in other drainage basins. For example, in 1963 and 1964, the surface runoff in the Hai He was 45.8 billion and 32.9 billion cubic meters, respectively, and in 1972, it was only 6.8 billion cubic meters, the former two being 6.7- and 4.8-fold the latter, respectively.

3. The coastal areas are most short of water. Here, the water resources are few and uneven distribution adds to the complexity and difficulties. These resources are fairly abundant along the Taiheng Mountains and the Yanshan area (for example, in Beijing), but very scarce in the Bashang area near the source of the river and in the southeastern plain along the coast. The southeastern plain, in particular, is the most water-deficient area in China, because it is located at the lower reaches of the river, where the quantity of ground water replenishment is small, the water quality is poor, and the evaporative loss is large. Furthermore, the crops are concentrated in the flatland, and industry is flourishing.

B. Serious Water Shortage at Present

At present, the degrees of water exploitation and utilization here are the highest among all drainage basins in the country. The utilization rate is as high as 55.8 percent (against 15.9 percent in the country) for river/stream runoff and 87.4 percent (against 22.1 percent in the country) for ground water. Especially in certain tributaries of the Hai He, such as the

Chaobai, Yongding, Hutuo, and Zhang He, more than 98 percent of the runoff in the mountains is held in the reservoirs. This shows that very little can be done in tapping the potential of water resources.

In the 1950's, an average of 16 billion cubic meters of runoff went into the sea each year. Later, because of the various water conservancy projects, the average amount was reduced to only about 7 billion cubic meters in the 1970's. In 1980, 1981, and 1982, only 200 to 300 million cubic meters entered the sea each year. Many river channels dried up with the flow of water interrupted.

The scarcity of surface water forced people to resort to ground water, resulting in the lowering of the water table in many areas and serious land subsidence in some of them. For example, the subsidence in the central district and the suburbs of Tianjin was as much as 800 mm and even 1,867 mm in some part of the area.

Shortage of water has also seriously affected industrial and agricultural production as well as people's living conditions. Many cities in this region were short of water for their daily use and water for industrial use is universally scarce. In recent years, people have been forced to draw water from the Huang He for their urgent needs.

Baiyangding was originally a large lake which played a great role in agriculture, fishery, and navigation in the neighboring areas. However, because of the cutoff of water sources in recent years, its surface is shrinking, fishery has taken a nosedive, and navigation is almost at a standstill. In the past, again, Tianjin's prosperity and development were closely related to the Hai He which makes Tianjin a navigation center in the inland river network and the outer sea, and a trade center with flourishing industry and agriculture. In recent years, the water shortage has led to the building of sluicegates and a suspension of navigation, so that the Hai He's functions have been limited to water storage. The prolonged closing of the Hai He sluicegates caused the silting of the channel and the entrance to sea, reduced the flood prevention capacity, and brought about a suspension of navigation and transportation as well as changes in the natural environment. All these problems will produce profound and far-reaching effects on the drainage basin and the whole country.

C. Prospects for 2000

Since the exploitation and utilization rate of water resources in this drainage basin is already high, not much potential is left to be tapped. For example, the utilization rate of the ground water at the shallow layer has already reached 87 percent and no more should be drawn from this layer. As for surface water, 85 percent of it has already been held in the mountainous areas of the drainage basin, and a further increase in control would be difficult. There are about 7 billion cubic meters of plain runoff in the drainage basin which can still be utilized. However, since the plain runoff is confined to the high-water season, its utilization will not be easy. The construction of surface and underground reservoirs in the future may be helpful in making use of some of it, but this cannot be more than 30 percent.

The exploitation and utilization rate is now fairly low in the Huang He drainage basin. However, even with the help of the reservoirs in Daheiding and Panjiakou, and other water schemes, the available amount cannot be more than 3 billion cubic meters, which, together with the runoff in the Hai He plain, can add up to about 5 billion cubic meters. According to the rough estimates by various departments concerned, the amount of water required in this drainage basin in 2000 should be 12 to 25 billion cubic meters more than the present amount. Therefore, reliance on the tapping of the potential in this drainage basin alone can never help us produce enough water for the region's development. It should be further pointed out that the amount of water required does not include what we need to maintain navigation and fishery.

V. Resolving the Problem of Uneven Water Resource Distribution as Key to China's National Economic Development

Water resources and energy are the two main pillars of national economic development. In fact, water is required for both the exploitation and the production of energy.

However, these two resources are unevenly distributed and ill-matched in China. In the south where water resources are abundant, the shortage of energy handicaps economic development, while in the north, the shortage of water resources makes it impossible to bring into play its superiority in energy abundance.

To promote national economic development, the energy issue is now receiving attention in various quarters. In the Sixth 5-Year Plan and some long-range plans, energy exploitation and transportation enjoy first priority. This is very necessary and correct. However, the water resource issue should deserve equal attention. Furthermore, since solution of the water problem is more difficult and time consuming, an overall plan should be worked out well in advance. Therefore, attention must be paid to the following tasks:

A. Paying Full Attention to the Water Problem While Formulating Social and Economic Development Plans in China

Uneven distribution of water resources is one of China's national conditions. To establish a national economic system for the coordinated and balanced development for all localities, we must fully understand and gradually change this condition. We should work out a strategy for the exploitation and utilization of China's water resources, and this strategy should be closely combined with national economic development plans. On this basis, we should strengthen the control and preservation of water resources and lay down strict rules and rational policies.

B. Vigorously Undertake Water Conservation

Since our water resources are not plentiful, we should make a conscientious, long-term commitment to water conservation, particularly in the regions of water scarcity. First, we should correct people's mistaken ideas of water resources and step up publicity work on the shortage of water as a national issue in order to mobilize all people to participate in water conservation. At the same time, we should set up a reasonable scale of charges and strengthen the economic management of water. In the use of water for industrial and agricultural production as well as in people's daily life, we should popularize advanced experiences of water conservation. At present, water recycling should be encouraged as the focus of water conservation in industry. In agriculture, care should be taken to guard against seepage losses in ditches and to improve irrigation methods, while in urban areas, water meters should be installed in homes.

C. Actively Arrange for Water Transfer Projects

We should actively attend to the project of transferring water from the south to the north in the same way we transfer coal and petroleum from the north to the south. This is the only fundamental strategic measure to remedy the uneven distribution of water resources in China. The Huang He, Huai He, and Hai He region, having 30.3 percent of the national population and 35.9 percent of the national farmland, is the main region for production of coal, petroleum, iron ore, and salt in China, with promising conditions for industrial development. As to agriculture, its future output can be increased mainly through increase in per-mu output. For many reasons, particularly the shortage of water at present, the agricultural output in this region is low and unstable. However, since there is spacious flatland with sufficient sunlight and good temperature, there is good potential for increased agricultural output. With sufficient water resources, coupled with other measures, this region will play a key role in China's agricultural production. Furthermore, water resources are of great significance in restoring and developing water transportation, fishery, and tourism in this region. Therefore, transferring water from the Chang Jiang to this area is the key to its development as well as a measure of strategic significance in attaining China's objective of quadrupling the national economy.

Furthermore, solution of the water problem in the Liao He and other drainage areas may call for the transfer of water among different drainage basins. At present, the project of transferring water from the south to the north on the eastern front has also been decided on. This is a correct policy. Of course, transferring water across drainage basin borders will involve many issues including those of technology, economy, and effects on the ecological environment, and this matter should be carefully studied. However, since this project involves a great deal of work and requires a long time, we should actively proceed with it in order that it can play its role at an early date.

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Chapter 5. Forecast of China's Forest Resources in 2000

by Wei Mai [7614 6701] and Shang Yichu

Summary: Forests play an important role in economic development and the preservation of natural environment. As a result of prolonged destruction of China's forest resources, its forest cover is now only 12 percent, the natural environment has been degraded, and the supply of timber falls short of demand. This article will describe China's present forest resources and the related problems; forecast its forest cover, reserve, and timber output as well as other forest products and the feasible growth rate of its gross value in 2000; and discuss the strategy of its future development. [End of summary]

Forestry is an important component of the national economy, since forests are not only an important source of timber, but also renewable energy. The important role played by forests in preserving the natural environment and their beneficial effects are now recognized by more and more people. However, China's forest resources are inadequate, and the forest cover is only 12 percent. Because of the "priority of felling over planting" over a long period, and the excessive felling, particularly the indiscriminate felling that is not included in the plans, the forests have undergone many major disruptions, and the drain on forest resources is estimated to be 200 million cubic meters each year. For many years, the quality of afforestation has been poor and the preservation rate is only one-third. There is now worry about the exhaustion of forest resources, and the contradiction between timber supply and demand is still very acute. Forestry has always been a weak link in China's economic development. Timber output in 1980 was reduced to 53.59 million cubic meters according to the plan, and the total forestry output value was 8.67 billion yuan, 3.96 percent of the GVAO and 1.2 percent of the GVIAO. In the 1953-1980 period, the average increase in the GVIAO was 8.2 percent each year. The GVAO increased 3.4 percent, of which, forestry's portion was the smallest. Therefore, the preservation of forest resources, the halting of indiscriminate felling, the active planting of trees, and the rational exploitation and utilization of the existing natural forest resources constitute an urgent task in the development of China's national economy and the preservation of the natural environment. China has already treated the development of forestry as an important national policy.

I. China's Forest Resources Described

An analysis of China's present forest resources in comparison with the world's forest output will elicit the following characteristics:

A. Inadequate Forest Resources, Low Forest Cover, Still Lower Per Capita Level

According to an inventory of China's forest resources in 1976, the whole forest area in the country was 1.83 billion mu; the forest cover, 12.7 percent (now 12 percent, but 12.06 percent according to the statistics in the "1980 Production Almanac" of the FAO); and the forest reserve, 9.53 billion cubic meters. The per capita forest area was only 1.8 mu, only one-eighth of the world average of more than 14 mu. The world's average forest cover was 30.67 percent, while China's was only about 39 percent of that. Compared with the forest cover of the countries with large territories, such as 41.03 percent in the Soviet Union, 31.05 percent in the United States, and 32.69 percent in Canada, the size of China's forest area is very inconsistent with its territory. Even India has a forest cover of 20.47 percent, while China's is only 59 percent of that. China ranks 131st among more than 200 countries and regions in the world in forest cover. Its forest reserve is only 3 percent of the world reserve of 310 billion cubic meters, an average of only 9.5 cubic meters per person, which is only 12.7 percent of the world average of 75 cubic meters. The difference is even more striking if China's per capita reserve is compared with the 300 cubic meters of the Soviet Union and the 88 cubic meters of the United States. China's forest productivity is very low, since its average per mu forest reserve is less than 5 cubic meters, only two-thirds of the world average of 7.5 cubic meters. On the whole, China is one of the countries with relatively little forest resources.

B. Forest Distribution Uneven, Mostly Concentrated in Border and Inaccessible Remote Regions

China's natural forest resources are mostly located in the northeast and southwest, and these two regions have half of the national forest lands and more than three-quarters of the forest reserve. Trees are scarce in the vast agricultural areas on the plains and in the herding areas in the grasslands, while in the densely populated and industrially developed plains, forest land amounts to only 200 million mu with a per capita area of less than 0.3 mu. The forest reserve is only 1 cubic meter per person. Moreover, the accessibility rate of China's forests is low, now less than one-third, whereas it is generally over 80 percent in foreign countries with advanced forestry, and 95 percent in the North European countries. In China's forest lands, roads for timber transportation average 1.03 meter per hectare. Compared with 4 meters in the United States and 2.3 meters in the Soviet Union and 22 meters in the FRG, forest construction in China is very backward indeed. Because of the low accessibility rate and the lack of management, the reserve of overgrown trees reached 3 billion cubic meters, and at a natural withering rate of 0.9 percent, the loss from this source would reach 27 million cubic meters, more than half of China's planned felling.

C. High Ratio of Mature Lumber Forest, Low Ratio of Useful Resources and Forest Utilization Rate

China's timber reserve is 7.7 billion cubic meters, including 5.4 billion cubic meters of mature timber forest, 70 percent; 1.8 billion cubic meters of middle-age forests, 23 percent; and 500 million cubic meters of young forests, 7 percent. After deducting those of Taiwan and Xizang which are beyond the line of actual control, there are only 4.4 billion cubic meters of timber reserve, of which only 80 percent, approximately 3.5 billion cubic meters, can be exploited and utilized.

For a long time, China's forest industry has been only concerned with logging operations but not with the processing and comprehensive utilization of timber, resulting in great waste. Since the founding of the People's Republic, log output, as stipulated in the plan, totaled about 860 million cubic meters, most of which was supplied to the users. Based on a 65-percent output rate and a 70-percent processing rate, there will be about 720 million cubic meters of odds and ends left over in the lumbering areas, and only 12 million cubic meters, 1.7 percent, of them are utilized. Even if the processing and utilization of small wood in the forest products chemical industry are taken into account, the utilization rate of leftover materials still cannot exceed 10 percent. Thus, about 650 million cubic meters of leftover forest materials are used as fuel or simply left to decay, whereas, according to world standards, the average utilization rate of materials left over from lumbering, bucking, and processing, reached 50 percent. From this, we can see the backwardness of our timber industry.

D. Wide Variation of Tree Species and Damage Caused

Among China's northeastern forests, those dominated by Korean pines and larches have been much reduced in size. Both the area and the reserve of the former have been reduced by about 60 percent. The reserve of the latter has been reduced by 30 percent, although its area has been only slightly reduced. In the forests of the south, the resources of China fir and masson pine have been increased, thanks to the active efforts in planting. The area of China fir has been increased by 70 percent, and reserve increased by 22 percent, while the area of masson pine has been increased by 95 percent, and reserve increased by 33 percent.

E. Serious Damage to Forest Resources

China's forest cover was reduced from 12.7 percent in the Fourth 5-Year Plan to about 12 percent in the Fifth 5-Year Plan; and the forest area, from 1.83 billion mu to 1.73 billion mu, a reduction of 100 million mu in several years. The causes were as follows:

Overintensive Felling, Drain Overtaking Growth: According to an inventory of resources during the Fourth 5-Year Plan, the annual drain on China's forest resources was about 200 million cubic meters, of which, two-thirds were not included in the plan. The consumption of 40 to 50 percent as firewood was also not provided for in the plan. At present the production of more than 85 percent of state timber is confined to the forest lands under the jurisdiction of 131 forestry bureaus and 158 key counties in 9 southern provinces. The situation of overintensive felling is very serious. According to a survey, among the present 131 state-run forestry bureaus, 61 of them practiced overintensive felling, and in 1980, a total of 6.9 million cubic meters, 40 percent of the output under state-controlled distribution among these bureaus, were felled.

The forest lands in Heilongjiang, Jilin, and Nei Monggol are the largest timber-production bases in China, producing 52 percent of the total national amount and turning over to the state 72 percent of the total contribution.

Of the 82 forestry bureaus in these 3 areas, 40 practiced overintensive felling. Although the timber-output target has been lowered, more than 3 million cubic meters, 18.4 percent of the rational annual output by the existing forestry bureaus, is still overfelled.

The forest lands in Sichuan and Yunnan produce 12.3 percent of the total national timber output, and each year turn over to the state about 8 percent of the total national timber contribution. More than half of these forestry bureaus practice overintensive felling. In Sichuan, 74 percent of the forestry bureaus have practiced overintensive felling and some of them had to reduce their productive capacity by 295,000 cubic meters in 1980 because of their dwindling resources.

The total timber output by the collective forest lands in nine provinces and regions of the south accounts for 30 percent of the national total and 19.6 percent of the amount turned over to the state. All this timber was produced by 158 key counties. Since capital construction has for many years failed to make any headway, the trees in the forest lands along the river and near the roads were subjected to repeated logging operations until the mature trees in these locations have almost totally vanished in many counties. Now, these counties have to resort to the felling of middle-age trees to meet their timber-output quotas. In some counties, there are no trees left to be cut at all.

Because of overintensive felling, the drain on China's forest resources has far exceeded the growth. In the 32 years after the founding of the People's Republic, the total drain on forests amounted to about 4.12 billion cubic meters, while the growing stock amounted to about 3.4 billion cubic meters, 720 million cubic meters less than the drain. In the past 2 years, the drain amounted to as much as 290 million cubic meters while the growth was about 190 million cubic meters, 100 million cubic meters less than the drain. The situation is even worse in some key forest areas. The Yichun forest area, for example, has 16 forestry bureaus, and 10 of them have almost exhausted their forest resources.

Unplanned Felling Uncontrollable: In China, the ratio between the amount of planned felling and the actual drain on forest resources was in most provinces 1:3-4 in the mid-1970's. In the past 2 years, it was as high as 1:7-8 in some provinces. In provinces with little forest resources, such as Jiangxi, Henan, Hebei, and Liaoning, the amount of unplanned felling reached as much as hundreds of thousands to over a million cubic meters. According to the state plan, the amount of felling can be only 50 million cubic meters a year, and the drain on resources cannot be more than 70 to 80 million cubic meters. In recent years, however, the actual drain reached 290 million cubic meters, and a large amount of this, generally 30 to 40 percent and in some cases as high as 60 to 70 percent, of the unplanned amount, was burned as firewood, leaving the rest to be used as timber by the communes and production brigades or to be procured as forest products. Particularly in the remote or frontier mountainous regions, firewood is relied on as the main source of energy not only by the residents in their daily life, but also in industries run by some townships, communes and production brigades for making bricks, roasting tealeaves, curing tobacco, making rubber, and so forth. In the forest lands throughout the country, about 65 million cubic meters, more than the total timber output according to the state plan, and 35 percent of the total drain on forest resources, was burned as firewood.

Serious Loss From Forest Fires and Insect Pests: According to statistics, in the 1950-1979 period, more than 480,000 forest fires occurred and devastated 480 million mu of forests, exceeding the total preserved planting areas in the country in the same period. The devastated area is not much different in size from the total lumbering area in the state's plan of forestry production. Each year, the disaster-stricken areas totaled 5.33 million mu, 0.3 percent of the total forest area, exceeding the world average of 0.1 percent, and 3.3-fold that of Sweden (0.09 percent), 6-fold that of Japan (0.05 percent), and 1.5-fold that of Canada (0.2 percent). Heilongjiang, for example, has experienced more than 11,000 forest fires since the founding of the People's Republic, resulting in the devastation of more than 90 million mu of forests. Since 1965, Dahinggan Ling has had 950 forest fires which destroyed more than 50 million cubic meters of forest reserve. In the Yichun forest area, fires have also destroyed 9,827,000 mu of forests, double the preserved planting area, in the past 30 years. In 1979 alone, Yunnan had more than 12,800 forest fires which destroyed 10 million mu of forests, or 65 percent of the total preserved planting area. The number of forest fires in this province accounted for two-thirds of the total number and the devastated area here was more than those of the other 28 provinces and cities combined. The losses were tremendous. In Mengla County of Xishuangbanna, the nature preserve for elephants of the tropical and subtropical forests caught fire, and 150,000 mu of forests, one-third of the total preserve area was destroyed. Many of the elephants were forced to flee to some foreign land.

In recent years, more than 100 species of insects have infested China's forests, and the infested area reached about 100 million mu. Each year, at least 10 million cubic meters of forest resources were lost because of insect pests. In 1980, pine moths infested 47 million mu of forest. According to calculations after surveys of the damage, the forest growing stock in 1980 was reduced by 4.3 million cubic meters with a loss of more than 200 million yuan. According to incomplete statistics, in January-July 1981, about 18 million mu in 22 provinces, municipalities, and autonomous regions were infested by pine moths.

Leaf-cast is a major disease in the artificial forests of larch in northeastern Nei Monggol. Each year, this disease breaks out over an area of more than 5 million mu, about one-third of the artificial forest area. The growth of the diseased trees is regarded by about 40 percent, and the annual loss of timber is about 500,000 cubic meters.

Serious Situation of Land Reclamation Through Deforestation and Indiscriminate Felling: Because of the stress on grain production, China has for a long time continued to reclaim land through large-scale deforestation. In the Sanjiang plain of Heilongjiang, for example, large-scale land reclamation through deforestation has taken place since 1968, and the timber used for construction and firewood were obtained from the forests, resulting in severe damage.

In the past 10 years, one-quarter of the forests in Baoqing County, one-third in Luobei County, and two-thirds in Suibin County were destroyed.

Deforestation in land reclamation and slash-and-burn cultivation are now very serious in Yunnan and Hainan Island. The forest cover in Xishuangbanna Prefecture has been reduced from 69.4 percent in 1949 to 26 percent in 1980. Hainan Island has China's important tropical forest lands. Shortly after the liberation, there was a natural forest area of 18 million mu, 35 percent of the total island area. In 1956, 12.95 million mu of this area (including the area of second-growth forests) still remained and the forest reserve on the island was more than 100 million cubic meters. Because of deforestation for crops, only 5.44 million mu of natural forest, 10.5 percent of the total island area, remained in 1981. The total forest reserve was 40 to 50 percent less than in 1956.

Overintensive lumbering and deforestation in land reclamation have given rise to a series of natural disasters, because, in addition to the threat of extinction of forest resources, the ecological environment was seriously disturbed. In the Sanjiang plain and Songnen plain of the Xiaochinggan Ling forest area, the weather had been always favorable for crops in the past. In the last 20 years, however, one natural disaster after another has occurred. In the northwestern loess plateau, serious soil erosion as a result of prolonged destruction of forests and grasslands has converted huge areas into deserts. Each year, the Huang He carries 1.6 billion tons of silt through Sanmenxia. The area subject to soil erosion in the Chang Jiang drainage basin has also increased. What deserves particular attention is Hainan Island and Xishuangbanna, the two tropical forest areas, where the forest cover is rapidly diminishing because of overintensive lumbering.

II. Forecast of China's Forest Resources

A. Forecast of the Feasibility of Increasing Forest Cover

1. Analysis Based on the Speed of Afforestation

In the past 30 years, an average of 49.86 million mu was afforested each year. If, in the next 22 years (beginning 1978) the same rate is maintained, then in 2000, the total afforested area may reach 1.1 billion mu, and the forest cover may reach 20.3 percent, if no deduction is made for the lumbering areas. However, if the calculation is based on the assumption that only one-third of the afforested area could be preserved, as was the case in the past, the forest cover would only be 15 percent, which is only one-half of the 30.67 percent average in the world.

Shortly after liberation, China's forest cover was said to be 5.18 percent, or 8.6 percent according to some estimates. In 1978, it had increased to 12.7 percent, an increase of either 7.52 percent or 4.1 percent in 29 years, depending on which base is used. Based on these rates, the forest cover in 2000 may reach either 18.16 percent or 16.26 percent. This is the lower limit for the increase of forest cover in the next 22 years.

2. Observations on the Basis of National Territorial Resources

China now has 3,864,000,000 mu of land to be used for forestry including 1,828,000,000 mu already so used. In the future, if the barren mountains and wasteland, the denuded land after lumbering or forest fires, the sandy wasteland, the woodlands, the brushwood, and the immature forests are all turned into forests with full stocks, then the forest cover may reach 26.8 percent. This is the upper limit we may strive for. Some people also believe that if the land with an annual precipitation of more than 400 mm and suitable for forests, the land that is suitable for forests in the southern tropic zone, the two large forest areas in the northeast and the southwest, and the other places in the northwest and Taiwan are all added together, then China's total forest cover may reach about 28 percent. If the lands with an annual precipitation of more than 350 mm and ground water within 2 meters are all considered suitable for forests, then the forest cover may reach 35 percent. This will be the goal of our sustained efforts.

3. Projection of China's Forest Area and Forest Cover on the Basis of Timber Demand

A rough estimate based on the requirements for the state's economic construction, the people's daily life, capital construction, coal, and papermaking industries, production by communes and production brigades, housebuilding and the use of firewood in 1981, will show that China needs a total of 165 million cubic meters of timber. At an output rate of 65 percent and a consumption of 253 million cubic meters of forest resources, the lumbering areas should be 50.6 million mu. Based on a rotational period of 40 years, the rotational felling areas have to be 2,024,000 mu with a reserve of 10.12 billion cubic meters before sustained utilization can be realized. At present, China's forest reserve available for lumbering and utilization is only 3.5 billion cubic meters, equivalent to a forest area of about 700 million mu. Assuming that the unplanned drain on forest resources will be increased by 50 percent, then 3,036,000,000 mu of forest land is required, and with the addition of shelterbelts and nature preserves, a total area of 4.33 billion mu is required, and the forest cover will be raised to 30 percent. This is an ideal target for China in beautifying the environment with verdure, in meeting timber demand, or in increasing forest cover; but it can be realized only after 2000. If we project the forest area required on the basis of per capita consumption, then the required forest cover will be raised to 35 percent or even 45 percent. This can be accomplished only when the mountainous areas and deserts can be utilized following the development of science and technology.

B. Forecast on Growth and Drain on Forest Reserve

1. Possible Exhaustion of Forest Reserve According to Present Drain on Forest Resources

According to a survey, China's present forest reserve is 9.5 billion cubic meters, including 7.7 cubic meters of timber. However, only 3.5 billion cubic meters are available for lumbering and utilization. According to an estimate by the forestry sector, the drain on China's forest resources is mostly confined to those areas which are easily accessible because of good transportation facilities. However, the growing stock in these forests is only 70 million cubic meters. If both the forest resources that are available for lumbering and the drain on them are confined to these locations, then continued lumbering of the present available resources of 3.5 billion cubic meters can last only 27 years, and will be exhausted after 2000. Of course, it is possible that some new forest areas will be developed in the future to increase both the area and the reserve of forests for lumbering and utilization. At the same time, proper care for the young and middle-age trees will increase the reserve of forest resources available for lumbering. However, we should be vigilant against the possibility of exhaustion.

2. Proper Care for Young and Middle-Age Forests as a Means To Increase the Reserve

The present timber reserve is about 7.7 billion cubic meters including 70 percent in mature forests with a reserve of 5.4 billion cubic meters; 23 percent, with a reserve of 1.8 billion cubic meters of middle-age forests; and 7 percent, with a reserve of 500 cubic meters of young forests. Provided that the reserves of all these age classes and their growth rates do not change much in the next 20 years, and that the gorwth rates of the mature, middle-age, and young forests are 1 percent, 5 percent, and 13 percent, respectively, then their growing stocks compounded in 20 years, will reach 6.59, 4.78, and 5.76 billion cubic meters, respectively, totaling 17.13 billion cubic meters. AFter deducting the estimated rain of 5 billion cubic meters in the next 20years (2 billion in the first 10 years and 3 billion in the second 10 years), there will still be about 12.1 billion cubic meters of reserve left.

3. Forest Reserve Far Short of Projected Demand

China has planned to cut 100 million cubic meters by the turn of the century. At present, the drain on its forests is more than fourfold the planned cut. This drain may be reduced later, and on this basis, the annual drain by the turn of the century may be less than 400 million cubic meters. This will call for a total timber reserve of no less than 16.1 to 20 billion cubic meters by that time. According to this calculation, there will still be a shortage of 4 to 7.9 billion cubic meters.

To solve this problem, we must first reduce the cut in the state plan, and particularly the unplanned drain on forests. Second, we must strengthen the present forest management and increase the growth rate of middle-age and young forests. Particular attention should be paid to the use of advanced technology to build fast-growing, high-yield forests and to increase the forest reserve per unit area.

C. Serious Shortage of Timber Anticipated According to Economic Development Requirements

For a long time, China's timber supply has been tight. In 1980, the planned timber output was 53.59 million cubic meters, reduced to 49.42 million cubic meters in 1981.

In 1981, when China's economy was in the stage of readjustment, the amount of timber can be said to have been reduced to the minimum for the requirements of economic construction and the people's daily use. A rough estimate is shown in Table 1.

Table 1. Estimate of Timber Demand

Item	Timber demand (10,000 cubic meters)	Remarks
Capital construction investment 50 billion yuan	1,000	Calculated at the rate of 2 cubic meters per 100 million yuan investment
Mine timber required for production of 620 million tons of coal	1,364	Calculated at the rate of 220 cubic meters of timber for 10,000 tons; recently reduced to 50 cubic meters by some key mines
Timber required for increasing mine production capacity by 120 million tons	264	
Timber required for producing 5.2 million tons of paper	2,808	5.4 cubic meters of timber for producing each ton of paper
For railways, communications, power, shipping, and military industries	500	
Timber used by local enterprises, communes, and brigades	3,550	Including 5 million cubic meters for forestry enterprises, 5 million cubic meters for communes and brigades, and 22.5 million cubic meters for rural housing
Firewood	7,000	
Total	16,486	

From this table, we can see that for the first four items, 59.36 million cubic meters of timber will be required. From this, we can project a planned amount of 75 million cubic meters in 1990, and at least 120 million cubic meters in 2000. By the end of the century, the target output of timber, as set in the state plan, will be 100 million cubic meters, doubling in 20 years. Excessive felling will still be unavoidable, and if unplanned felling is not brought under control, forest resources may still suffer serious damage.

D. Difference Even Greater if Proposed on Basis of World Per Capita Consumption

China's output of timber and forest products is low. If its per capita consumption is compared with that of the world, the difference is even more obvious. In 1981, the planned timber output was 49.42 million cubic meters with a per capita output of 0.05 cubic meter. This per capita output is only one-twelfth of the world level of the 1970's (in 1977, the total timber output in the world was 2.55 billion cubic meters; 0.6 cubic meter per capita). The per capita timber output was 1.6 cubic meters in the United States and 1.45 cubic meters in the Soviet Union. The difference is even greater if our per capita output is compared with that of these two countries. A comparison of the consumption of other forest products, such as lumber, artificial board, machine-made paper, and cardboard, are shown in Table 2.

Table 2. Consumption of Forest Products by China and Other Countries Compared

Country or region	Lumber	Artificial board	Machine-made paper and cardboard (10,000 tons) Consumption (kg/ 1,000 persons)
China--1981 output (10,000 cubic meters)	1,301	99.57	535*
Consumption (cubic meter/1,000 persons)	1.3	0.1	0.05
Forecast output for 2000	1,656**	268	859
Consumption (cubic meter/1,000 persons)	13.8	2.2	7.2
World--Consumption in 1970's (cubic meter/1,000 persons)	327	47	81
Europe--1972-1979 (cubic meter/1,000 persons)	197	60	86
United States--1972-1979 (cubic meter/1,000 persons)	494	158	267
Soviet Union--1972-1979 (cubic meter/1,000 persons)	452	26	30
Japan--1972-1974 consumption (cubic meter/1,000 persons)	432	93	138

*Figures for 1980.

**According to other statistics, China's lumber output reached 13.69 million cubic meters and its equipment capacity reached 20 million cubic meters in 1980. This table shows its rapid development in recent years.

According to China's output of lumber, artificial board (including plywood, fiberboard, and particle board), machine-made paper and cardboard in the past 30 years, and particularly the increased output in 1971-1980, the average output rate was 2.07 percent for lumber, 19.82 percent for artificial board, and 7.43 percent for machine-made paper and cardboard. On this basis, the output and the per capita consumption in 2000 (based on a population of 1.2 billion) are shown in Table 2.

By comparing China's per capita consumption of forest products with that of the world in 2000, we can see that China's level is only 4.2 percent in lumber, 4.7 percent in artificial board, and 8.8 percent in machine-made paper and cardboard of the world level. Even compared with the lower level of southern Europe (in the 1972-1979 period, the average consumption of lumber was 104 cubic meters and that of artificial board, 25 cubic meters per 1,000 persons), China's level is only 13.3 percent and 8.8 percent that of southern Europe. As for paper and cardboard, the consumption per 1,000 persons is 30 kg in the Soviet Union and as much as 267 kg in the United States, while that of China is only 2.7 percent that of the United States, a huge difference between them. It also shows that China must make greater efforts to develop its timber-processing industry, and particularly the artificial-board industry, and to raise its timber-utilization rate.

E. Fairly Large Increase in Total Forestry Output Value Projected

In 1980, China's total forestry output value reached 8.67 billion yuan, 3.96 percent of the GVAO. In 1953-1980, the average growth rate of the total forestry output value was 4.5 percent, the lowest constituent of the GVIAO. If a progressive increase rate of 5 percent for the next 10 years and 5.4 percent for another 10 years can be maintained, then in 2000, a total forestry output value of 25 billion yuan can be expected.

Up to now, China's total forestry output value consists mainly of its forestry industry output value. The management of forestry is mostly in the hands of public agencies with no economic accounting, and no economic yardstick for output value. For example, since the founding of the People's Republic, 420 million mu of artificial forest has been built and preserved. Since the reserve is at least 500 million cubic meters, a planting fee of 5 billion yuan should be in order. If we calculate the value of the forest at the rate of 20 yuan per cubic meter, the amount would be at least 10 billion yuan. This should be the total output value of artificial forests built after the founding of the People's Republic. However, this value, which has been created by the forestry sector, is being divided among various links in circulation, distribution, marketing, and processing, leaving not even enough for the forestry sector to maintain its simple reproduction. This form of predation is very harmful to forestry as a business operation.

Now China's selling price of state-owned timber is about 110 yuan per cubic meter. After deducting taxes, management, and other fees, the share of the forest is less than 30 yuan, approximately 20 percent. In many countries of the world at present, it is customary for the major portion of the timber sales proceeds to go to the forest owner. For example, the forest's portion now accounts for 67.4 percent of the selling price in the United States, 60.8 percent in Japan, 72.1 percent in Italy, 83.6 percent in New Zealand, with a world average of 60 percent. In this way, the investment in forestry will be profitable. Therefore, China's price should be set at 80 to 100 yuan per cubic meter, and the profits should go to the forestry sector as a source of its administration expenses so that the forests may be self-supporting.

Affirmation of the stumpage means recognizing the value of forests. This is one way to increase the total forestry output value. The stumpage, once determined, will increase along with the increase in the reserve, and this is another way to increase the total forest output value. A combination of the two with the addition of the output value of lumbering, sideline production, and comprehensive utilization will form the total forestry output value. Even though the value is based on the rate of 20 yuan per cubic meter, a quadrupling of it can be anticipated by the turn of the century. It is also possible that it will be seven times the present amount. However, it may be less if only the reserve increase is counted.

III. Strategic Issues in China's Forestry Development

In order that the strategic objective of "maintaining a continuous reforestation for sustained utilization" be achieved, China must not only increase the forest resources, but also be concerned with the effects of forestry on the environment. The predatory method of "stressing lumbering and slighting planting" has been adopted for a long time in forestry, resulting in serious damage to forest resources. In the future, there should be a period of rest and recuperation for forestry before it can make another flying start.

A. Step Up Publicity Work and Education so That All People Will Pay Attention to Afforestation and the Protection of Forest Resources

This is a fundamental measure in a long-range plan. Reviewing the history and looking at the present situation in all countries of the world, we can see that because of the ignorance of the benefits of forestry to the environment, people were only concerned with their immediate gains, with the result that forest resources suffer serious damage. We must realize that in China with its population of 1 billion and 9.6 million square km in territory, such a small forest cover can hardly ensure either the stable output of agriculture and animal husbandry or the improvement of the environment and the people's living conditions. We must look at not only the direct economic benefits from the forest in the way of timber and various forest products, but also its effects in regulating the climate, conserving water and soil, providing wind shelter, solidifying the sand dunes, purifying the atmosphere, beautifying the landscape, supplying habitats for wildlife, and other ecological benefits, then, the latter benefits will assume even greater importance. At present, China's timber output value accounts for more than 98 percent of the total forestry output value. It is estimated that by the turn of the century, it will be reduced to about 60 percent, and the growth rate of its indirect benefits may be higher than that of its direct output value.

B. Strictly Control Unplanned Lumbering, Energetically Build Firewood Forests, and Gradually Solve the Problem of Timber and Fuel in the Countryside

China must seriously study and work out the methods and legislation for forest protection according to its present conditions of forest production. Its forestry policy must be linked with the people's economic benefits, through the affirmation of the rights of ownership over forests and the implementation of the system of responsibility for forestry production. In controlling the timber market, the state should implement the principle of the leading role of planned economy and the supplementary role of market regulation, readjust the timber prices from time to time, and control unplanned felling with economic means.

The solution of the fuel problem in the countryside is an arduous task. According to an estimate, of the 173 million peasant households, 47 percent lack firewood for more than 3 months, and another 22 percent lack firewood for less than 3 months; thus, besides straw and tree bark, it is estimated that 80 million cubic meters of timber has to be burned. According to the statistics of 1979, firewood accounted for 38.1 percent of rural fuel, while straw accounted for 41.3 percent. If two-thirds of the areas in the agricultural regions on the plains and of the small private plots of hilly land and the waste hilly land (totaling about 200 million mu) can be used as firewood forests in the next 20 years, the areas of these forests will be increased fourfold, averaging about 2 mu for each peasant household. We will also supply these households with small amounts of other energy resources as a supplement to solve their firewood problem so that the forests will not suffer further damage. It will also help them return the straw to the field for agricultural purposes.

C. Work Out Scientific Standards of Forest Management, Adopt Advanced Technology To Increase Output To Attain the Objective of Doubling Forest Growth Speed

At present, China's average forest stock is only 0.12 cubic meter per mu, and the total annual growth is 187 million cubic meters. In the next 20 years, if there is 50 million mu of fast-growing, high-output forests, and the growth in each mu is 1 cubic meter, then the stock will be increased by 50 million cubic meters each year. Therefore, the main effort should be directed at the management of the existing forests in order to raise the growth rate of the middle-age and young forests. At present, China's forest reserve averages 5.26 cubic meters per mu, lower than the world average of 7.3 cubic meters per mu, and one-third of Switzerland's 15.6 cubic meters. Today, the productive capacity of most forests in the world is far lower than their potential capacity. In the past 20 years, many countries have actively adopted high-output management methods in the selection of tree species of good hereditary forms, improvement of land, application of fertilizers, and prevention of pests. Many localities in the world have had successful experience in increasing the productive capacity of forests, and have introduced the "tertiary forest" concept. In other words, trees in forestry should be managed in the same way crops are managed in agriculture, and consequently, some integrated agricultural-forestry enterprises have appeared. At present, in southern North America, South Africa, and New Zealand, the total forest area run by enterprises with corporate investment is estimated to be about 1.5 billion mu. In managing the forestry business, the forest area should be expanded and the forest reserve per unit area should be increased, because there must be more capital before there can be more interest, and correspondingly higher annual growth and the hope of attaining the objective of doubling the present stock.

D. Increase the Forest Cover by Stages and Areas

To attain the objective of increasing China's forest cover by 20 percent by the turn of the century, we should proceed by stages and act differently in different areas. In terms of time, if a balance between lumbering and cultivating can be achieved in 1985, then the forest cover can be increased to about 15 percent in 1990 and to 20 percent by the turn of the century. We should further study the areas of afforestation and the location of these areas 20 years later. In 1981, the actual area of afforestation was 61,636,000 mu. On this basis, the projected area in 2000 will be at least 1.2 billion mu. The survival rate (preservation rate) was only one-third in the past 30 years. In the future, if we can gradually raise it to 60 percent, expand the afforestation area by more than 1.8 billion mu, and preserve 1.08 billion mu of it, then the forest cover will be increased 20 percent. Thus in the first 10 years, 560 million mu will be afforested with actually 336 mu preserved, and the forest cover will be up to 15 percent. In the next 10 years when 1.3 billion mu will be planted with 780 million mu preserved, the forest cover will be increased to 20 percent.

Let us classify the areas as the Soviet Union does. In China, the areas with some forest or a large forest area add up to only 2,054,700 mu (including Taiwan), or 14.28 percent of the national territory (in the Soviet Union, the combined area of these two categories is 64.4 percent of the total area); the rest is either without forest (with a forest cover of less than 2 percent), or with a small or moderate forest area. Most of China's plains are unforested, and the people are seriously short of fuel or timber for their own use. However, certain vegetation is necessary to preserve the ecological environment. We should, therefore, plant trees in suitable locations and in cropland in order to increase the forest cover. Economic forests should be selectively developed in the hilly regions to increase the forest cover to 30 to 35 percent. Mountainous areas are the key areas for timber forests and shelterbelts, and the forest cover here should reach 50 to 60 percent. To accomplish this purpose, the first method is aerial seeding, which is the best modern method of afforestation, particularly for barren mountains with large areas and small population. In the past 25 years, China has used this method over 195 million mu and preserved 67.5 million mu at a preservation rate of about 34.6 percent. In the future, we can arrange aerial seeding for 20 to 30 percent of the area. A second method is to seal off the mountains to facilitate afforestation. This is a traditional Chinese method that remains as a possible means of greening the landscape. In the future, it is estimated that this method can be used on more than 200 million mu. We can use these two methods to perfect one-fourth of the afforested areas or one-half of preserved areas.

E. Develop Firewood Forest Areas, Cut Overmature Forests To Solve the Problem of Timber Supply and Demand

One of the contradictions in China's forestry is that while overintensive lumbering is proceeding, on the one hand, the proportion of overmature forests remains fairly high, on the other. Since the latter has not been duly managed and developed, the trees were left to survive or die naturally. The ratio between China's annual timber output and the forest reserve is on the average 1:141, which is by no means high compared with other countries in the world (1:66 in the United States, 1:33 in Sweden, and 1:32 in Finland), since its lumbering is mostly concentrated in areas with convenient transportation. Therefore, the exploitation and building of new forest lands is a strategic policy decision. This task, though arduous and requiring heavy investment, is entirely justifiable since in the long run, this is a rational way to use forest resources and to increase timber output. China's investment in capital construction for forestry has been too little in recent years, and appropriate increases should be considered.

F. Raise the Timber-Utilization Rate, Energetically Develop a Timber-Processing and Comprehensive-Utilization Industry

In China, the utilization rate of the odds and ends left over from lumbering, bucking, and processing is only 10 percent. If it can be raised to 50 percent by the turn of the century, we will be able to produce 5 million cubic meters more of fiberboard and particle board. Development of the timber-processing industry, particularly the artificial-board industry, is an effective way to solve the problem of timber shortage. In 1977, the output of artificial board in the world reached 94.8 million cubic meters, about doubling that of 1966 (48.64 million cubic meters). The output was 32.38 million cubic meters in the United States and 10.02 million cubic meters in Japan, with an average of 158 cubic meters and 93 cubic meters per 1,000 persons, respectively. The average output per 1,000 persons was 60 cubic meters in Europe and 26 cubic meters in the Soviet Union, while in 1981, China's output of artificial board was only 995,700 cubic meters with only 1 cubic meter per 1,000 persons. Therefore, China must not confine its attention to the utilization of lumber. It must quickly catch up with the processing and comprehensive utilization of timber.

China's annual consumption of paper and cardboard is more than 5 million tons, and its present output can only meet about 62 percent of its requirement. Recently, more than 1 million tons have been imported each year, and the shortage of supply is expected to be large. It must develop its own paper-making industry and consider importing some timber, paperpulp, and paper in order to preserve its own forest resources. Many countries with fairly rich forest resorces have adopted this measure to avoid serious damage to their domestic resources.

G. Develop Woody Oil, Grain, and Various Cash Crops To Stimulate Economy in the Mountainous Regions

In 1980, China's rapeseed output reached 498,000 tons; that of chestnuts, 66,800 tons; walnuts, 117,000 tons; and tung tree seeds, 400,000 tons. The output of other forest products, such as resin, tannin extract, and camphor, all showed increases. If we can adapt measures to local conditions and fully develop the fine species, we will be able not only to supply large quantities of edible plant oil, but also to increase many important resources for exports. It is estimated that if the rapeseed forests are increased to 90 million mu; walnut forests, to 35 million mu; and shiny-leafed yellowhorn and olive forests to 10 million mu each, the total output may reach 1.75 to 2.65 million tons, equivalent to the total edible oil output in the country in 1979. Therefore, we must formulate the policies which permit peasants to engage in economic forests permanently, while the state may grant subsidies according to the areas of forests. This will help expand the forest area and at the same time increase peasant income.

H. Set Up Forest Prices and Run Forestry Production in the Way Used by Enterprises

Forest cultivation fees were levied in the early post-liberation period. These fees could not reflect the labor expended and the value created in the process of forestry production. As a result, the fruits of forest production could not be duly recognized, and the destruction of forest resources became increasingly serious. In the future, the units in charge of forests must operate in the form of enterprises and the system of state budgeting must be replaced by that of economic accounting. The determination of forest prices must be treated as a major issue in China's forestry construction which must be investigated, studied, and settled.

Forest price is the monetary expression of forest value, and its increase should be compounded. In the future, we must continue to study the method of calculating forest prices so that it can be adopted in practice. In the past, their prices were not calculated in a scientific way. In the collective forest areas of the south, it was roughly calculated in terms of stumpage, which is very irrational. For example, the stumpage of each cubic meter of China fir was only 14 to 17 yuan, only one-tenth of Japan's, and that of masson pine was 8 to 11 yuan, only one-tenth of that of U.S. pine. After the deduction of the cultivation outlay, the stumpage of masson pine is only 5.59 to 7.69 yuan. Based on a reserve of 10 cubic meters in 25 years, the per-mu output each year can yield a stumpage of 2 to 3 yuan, with no profit to gain. Investment in forest operation should earn high interest, generally much higher than interest for bank deposits. We must pay great care to the theoretical basis of forest price and the formula for calculating it for implementation so that China's total forest output value can be quadrupled, the forests can be protected from damage, ecological disasters can be reduced, and a new prospect can be opened for forestry construction.

Annexed Table 1. Present and Projected Conditions of China's Forests

	General conditions in 1980		1990 forecast or envisaged target	2000 forest	
	National total	Per capita amount		National total	Per capita amount
Forest area (100 million mu)	18.3	1.9 mu	21.12	29.14	2.4 mu
of which: Timber forest (100 million mu)	14.3				
Forest cover percent	12.0		15.5	20.8	
Forest reserve (100 million cubic meters)	95.3	9.7 (cubic meters)	100	121.3	10.1 (cubic meters)
of which: Timber forest (100 million mu)	77.4				
Average per-mu reserve (cubic meters)	5			7.5	
Total growing stock each year (100 million cubic meters)	1.87		2.4	3.1	
Average per-mu growth (cubic meters)	0.12			0.17-0.23	
Total preserved area of afforestation (100 million mu)	5.4		9.04	16.24	
Drain on forest resources (10,000 cubic meters)	19,653				
Included in plan	5,359	0.0545 (cubic meters)	7,000-7,500	9,000-12,000	0.08-0.1m (cubic meters)
Not included in plan	13,570				
Of which: Firewood forest	6,518				
Lumber (10,000 cubic meters)	1,369	0.014 (cubic meters)	1,650	1,940	0.016
Artificial board (10,000 cubic meters)	95.57	0.001 (cubic meters)	200-230	300-380	0.0025-0.0032 (cubic meters)
Of which: Plywood	35.11				
Fiberboard	56.83				
Particleboard	7.63				
Machine-made paper and cardboard (10,000 tons)	530	0.005 (kilograms)	765	1,100	0.009 (kilograms)
Total forestry output value (100 million yuan)	86.7		140	250-325	
Percentage of GVAO	3.8				

Annexed Table 2. Forest Resources of China and Other Countries Compared

	World level	China	United States	Soviet Union	Sweden	FRG	England	Japan
Forest area								
Total area (100 million mu)	615	18.3 17.355	43.6	138	3.96	1.1	0.312	3.75
Per capita area (mu)	14.25	1.9 1.8	19.65	51.9	47.7	1.8	0.6	3.15
Forest cover (percent)	30.67	12.0 12.06	31.05	41.07	58.73	29.44	8.44	67.18
Forest reserve								
Total reserve (100 million cubic meters)	3,100	95.3	177.6	733	23	10	1.4	21
Per capita reserve (cubic meters)	75	9.7	88	300	269		17	18
Forest growth								
Total growing stock (100 million cubic meters)	75	1.87	5.77	7.49	0.649		0.042	0.598
Per-mu growing stock (cubic meter)		0.12	0.17		0.21	0.41		0.17
Drain on forest resources								
Annual lumbering amount (100 million cubic meters)	62	2.2	5.18	5.24	0.6	0.28	0.032	0.4
Lumbering rate (percent)	2.0	2.3	2.9	0.71	2.6	2.8		1.9
Drain/growth	82.6	117.6	89.8	69.9	90.1		76.2	93.6
Timber								
Output (10,000 cubic meters)	255,475	5,359	33,918	36,468	4,737	3,595		10,275
Per capita amount (cubic meters)	0.65	0.05	1.6	1.45	2.3	0.60		1.0
Artificial board								
Output (10,000 cubic meters)	9,480	95.57	2,997	1,044	198	125.3		890
Per capita amount (cubic meters)	0.047	0.001	0.158	0.026				0.093
Artificial forest area (10,000 mu)		6,000	1,200	1,905	300	120	75	285
Percentage of existing forests		3.3	0.3	0.2	1.0	1.1	3.0	0.6

Sources: (1) UN FAO: 1980 Production Almanac.
(2) Survey and Planning Bureau of Ministry of Forestry: Basic Data of National Forestry, December 1980 (timber consumption of 1978 and artificial board output of 1977).
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Chapter 6. General Situation of China's Metallic Mineral Resources and Forecast for 2000, by Cheng Fengfe [4458 7655 7041]

Summary: Metallic minerals are raw materials for metallurgy and an important material foundation for the four modernizations. This article will conduct a forecast on the output and the amounts required of nonferrous metals and iron and steel, and then, on this basis, estimate the amount of iron ores required. It will later analyze the general situation of China's metallic mineral output and the extent of the actual availability, and present certain views and suggestions on the development of the metal mining industry. [End of summary]

The metallurgical industry is an important foundation of the national economy and an important indicator of the state's economic strength. For half a century before the liberation, when the modern steel industry was already in existence, old China's total steel output was less than 7 million tons, and that of copper, tungsten, tin, mercury, and other nonferrous metals was also very little. There was practically no metallurgy or processing industry. Since the founding of the People's Republic, metallurgy has developed from scratch into a fairly large and comprehensive industry, having mines of various sizes and including the smelting and processing industry. It is now basically adequate for the demands of the national economy, people's livelihood, and national defense. In the past 30 years, the output of pig iron was increased from 980,000 tons to 38 million tons, with a grand total of 460 million tons. Steel output was increased from 600,000 to more than 37 million tons, with a grand total of 430 million tons and approximately 60-fold the output before the liberation. The output of 10 different nonferrous metals has also been increased from some 13,000 tons to more than 1.2 million tons, an increase of more than 90-fold.

However, the mining industry's development has been rather slow, and is now a weak link in the development of the metallurgical industry.

The problem now confronting the metal mining industry is how to exploit and utilize China's abundant mineral resources, to take advantage of the latent advantages under the new historical conditions, and to supply ample mineral products of fine quality for promoting the metallurgical industry, in order that this industry will be adequate for the strategic task of quadrupling the GVIAO in 2000. This is also an important matter of great concern to the whole party and all the people.

I. Forecast for 2000

Metallic minerals are the raw materials of the metallurgical industry. The amount of metallic minerals required should be estimated according to the demand of the national economy for these minerals. Therefore, the forecast should begin with an estimate of the required amounts of rolled steel, steel, iron, and the nonferrous metals.

A. Forecast on the Output and the Amounts of Steel and Iron Required

1. Estimated Amounts of Steel and Iron Required

The International Steel and Iron Association has chosen to use the rolled steel consumption amount (or the intensity of use of rolled steel) per $100 million GNP as the basic coefficient. The amount of rolled steel required is equal to the product of the GNP and the consumption amount. This method can give a fairly comprehensive reflection of the changes in the required amount of rolled steel according to the national economic structure, the industrial technical development, and the social level of material consumption. The UN Industrial Development Organization and many other countries are adopting this method.

For an estimate of the amount of steel required, we must have two numerical data: the GNP and the steel consumption coefficient.

a. GNP

Based on China's GVIAO in 2000, the GNP by that time will be about 1.8 to 2 trillion yuan. (Footnote 1) (This is based on the calculations of the State Statistical Bureau that the average net output value of China's material production departments (namely, the national income) which accounts for 87 percent of the GNP in the 1975-1978 period, will gradually decline to 76 percent in 2000. It is also based on the calculation that in 2000, the national income will amount to 50 or 55 percent of the GVIAO.)

b. Consumption Coefficient of Steel

In the 1971-1980 period, China's average steel consumption coefficient was 0.67, and the changes within these 10 years were fairly stable. Therefore, it can serve as the basic coefficient for estimating the amount of rolled steel required in 2000. In addition, we have to consider the changes in the national economic structure, the increased ratio of light industry and the corresponding decreased ratio of heavy industry, and the reduction in the accumulation rate, and work out a general revised coefficient of 0.53 (or 0.58). (Footnote 2) (The estimate that the proportion of the material production departments' net output value will gradually drop from the present 87 percent to 76 percent in 2000, leads to a revised coefficient of 0.87 (76 percent ÷ 87 percent = 0.87); the estimate that the proportion of light industry in industry will be gradually raised from the present 43 percent to about 55 percent in 2000 leads to the second revised coefficient, 0.94 (75 percent + 25 percent x 43 percent ÷ 55 percent = 0.94). Since the accumulation rate was too high in the past, as high as about 33 percent in the 1970's, and such a high rate hindered the improvement of the people's standard of living as well as national economic development, it should be proper to set the future accumulation rate at 25 percent. Therefore, the accumulation coefficient is reduced to 0.65 (25 percent ÷ 33 percent - 0.1 = 65). In view of China's weak economic foundation, the accumulation rate may fluctuate between 25 and 29 percent. In calculation, 27 percent is taken as the median and the reduced accumulation coefficient will be 0.71 (27 percent ÷

33 percent - 0.1 = 0.71), in which 0.1 is included in view of the need to raise nonproductive and lower productive accumulation. Other factors, such as the consumption of rolled steel, since it is now difficult to determine the factors of the increase or decrease, we have left to offset each other. Summing up the above, we obtain two revised coefficients, 0.53 or 0.58.) The different consumption coefficients in different periods are: 0.60 in 1985, 0.51 in 1990, 0.42 in 1995, and 0.35 in 2000 (or 0.60, 0.53, 0.46, and 0.39, respectively).

c. Consumption Coefficient of Cast Iron

The consumption of cast iron can be regarded as part of the steel consumption coefficient. In the industrially developed countries, the output of cast iron is very low, about 1 to 6 percent of the pig iron output (only 7 to 8 percent in the Soviet Union which is considered high, and is now being lowered), while the proportion in China is much higher. According to statistics over the past 30 years, the proportion of cast iron is more than 30 percent (exceeding 10 million tons in quantity in 1978 and 1979). This is one of the important reasons for the high ratio of iron to steel, and hereafter, we should greatly reduce the output of cast iron, (Footnote 3) (The output of cast iron is reduced in 1985, 1990, 1995, and 2000 to 8, 6, 5, and 4 million tons, respectively.) and do everything possible to gradually replace most of the cast iron with rolled steel. The consumption coefficients of cast iron in different periods in China are: 0.24 in 1985, 0.21 in 1990, 0.18 in 1995, and 0.14 in 2000 (or 0.24, 0.21, 0.18, and 0.15, respectively).

Based on two sets of data of GNP and two other sets for the coefficient of steel consumption, three different sets of data for the required amounts of rolled steel and steel can be derived (Footnote 4) (Should have been four sets. However, since the second and the third set are so close to each other, they are combined to form the second set.):

First, a required amount of 73 million tons of rolled steel, converted to 86 million tons of steel (including 10 million tons of rolled steel required to replace cast iron, converted to 12 million tons of steel);

Second, a required amount of 81 million tons of rolled steel, converted to 95 million tons of steel (including 11 million tons of rolled steel required to replace cast iron, converted to 13 million tons of steel);

Third, a required amount of 91 million tons of rolled steel, converted to 107 million tons of steel (including 13 million tons required to replace cast iron, converted to 15 million tons of steel).

To simplify the calculations, the second set is used as the basis to forecast the required amounts of iron and iron ores in various periods (see Table 1). Based on these calculations, China in 1985, 1990, 1995, and 2000 will require steel in amounts of 40.7, 51.3, 71.7, and 95 million tons, respectively; pig iron in amounts of 37.4, 43.6, 57.3, and 71 million tons, respectively; and iron ores in amounts of 135, 157, 206, and 255 million tons, respectively.

Table 1. Forecast of the Amounts of Rolled Steel, Steel, Iron, and Iron Ore Required in China in 2000

	Actual amount in 1980	1985	1990	1995	2000
GNP (100 million yuan)	4,172	5,100	7,100	11,300	18,400
Rolled steel consumption coefficient (10,000 ton/ 100 million yuan)	0.67	0.60	0.53	0.46	0.39
Amount of rolled steel required (10,000 tons)		3,060	3,760	5,200	7,000
Amount of rolled steel required to replace cast iron* (10,000 tons)		200	400	750	1,100
Total amount of rolled steel required (10,000 tons)		3,260	4,160	5,950	8,100
Overall success rate (percent)	75	80	81	83	85
Amount of steel required (10,000 tons)	3,712	4,070	5,130	7,170	9,500
Iron-steel ratio	1.02	0.92	0.85	0.80	0.75
Amount of pig iron required (10,000 tons)		3,740	4,360	5,730	7,100
Iron-iron ore ratio		3.6	3.6	3.6	3.6
Amount of iron ore required (100 million tons)		1.35	1.57	2.06	2.55

*Ratio of cast iron to rolled steel replacement: 1:0.5

Based on a population of 1.2 billion in 2000, the per capita steel consumption will be only 79 kg. If the calculation is based on the required amount of 107 million tons according to the third set, the per capita amount will still be only 89 kg, which is fairly low. In foreign countries, steel consumption is much higher when the per capita GNP reaches $1,000. It is, for example, 580 kg in the United States, 430 kg in the Soviet Union, 620 kg in Japan, 560 kg in the FRG, 400 kg in England, 290 kg in France, and 240 kg in Italy, each being 3- to 7-fold that of China. According to statistics, in 1977 the world per capita steel consumption was 164 kg, 4.3 times the 38 kg of China, and in 2000, China's per capita consumption will be only half of the world per capita amount.

2. Estimated Output of Steel and Iron

According to its present speed of development in the steel and iron industry and the availability of investment and energy for this purpose, China will still be unable to meet its demand for steel as shown above. It is estimated that in the Sixth 5-Year Plan and the next several 5-year plans, the average progressive increase rates will be 1, 3, 4 and 5 percent, respectively. According to these rates, China's steel output in 2000 will be 70 million tons, approximately 25 million tons short of the required amount according to the second set of data. Furthermore, the output of cast iron is very high. With the output of 9.38 million tons of cast iron in 1980 as the base, we can use the increase rates of 1, 3, 4, and 5 percent to figure out the amounts of 9.8, 11.4, 13.9, and 17.7 million tons, respectively. If the amount of cast iron is reduced to 8, 6, 5, and 4 million tons, respectively, and the remainder is replaced by rolled steel, then the amount of rolled steel will be increased by 0.9, 27, 4.5, and 6.8 million tons, respectively. In 2000, the total steel output will be 77 million tons; that of pig iron, 57.7 million tons; and that of iron ore, 207 million tons (Table 2).

Table 2. Estimated Output of Steel and Iron in China in 2000

	Actual amounts in 1980	1985	1990	1995	2000
Steel output (10,000 tons)	3,712	3,900	4,520	5,500	7,020
Rolled steel used to replace cast iron (10,000 tons)		90	270	450	680
Converted to steel output (10,000 tons)		110	330	540	800
Total steel output (10,000 tons)		5,010	4,850	6,040	7,700
Iron-steel output ratio	1.02	0.92	0.85	0.80	0.75
Pig iron output (10,000 tons)	3,800	3,690	4,120	4,830	5,770
Iron ore required* (100 million tons)		1.32	1.48	1.74	2.07

*Ratio of iron ore to iron output 3.6:1

B. Forecast on Amounts of Nonferrous Metals Required

According to statistics, in the 1953-1980 period, the consumption of nonferrous metals in China increased at the average rate of 12.1 percent each year, 1.16-fold the rate of increase in the GVIAO in the same period. For many years, nonferrous metals have been in short supply for China's national economy. In the future, great demands will be made on these metals by the consumer-goods industry, as well as the energy, transportation, and construction industries. At present, the proportion of alloy steel in China is only 4 percent (against 12 to 16 percent in the United States, Japan, France, and the FRG). If this proportion is increased to 10 percent in 2000, the demand on nonferrous metals will be further increased.

In 1980, the total output of nonferrous metals in the world was 38.3 million tons, 5.3 percent of the steel output in the same year. It was highest in the United States, 7.7 percent of the steel output; and in the Soviet Union and the FRG, it was 4.1 percent. According to the forecast of the United States, the output of nonferrous metals in the world in 2000 will be 72.95 million tons, 5.48 percent of the steel output. In the 30 years from 1950 to 1980, China produced a grand total of 15.46 million tons of these metals, and their proportion in relation to steel output was on the average 3.5 percent, or 4.9 percent with the addition of 5.77 million tons from imports.

Estimating the amount of nonferrous metals required may be obtained with two methods:

1. The Consumption Coefficient Method

With the amount of consumption of nonferrous metals per 100 million yuan of GNP as the basic coefficient, the amount of nonferrous metals required is equal to the product of the GNP and the consumption coefficient.

In China, the average coefficient of 0.037 of nonferrous metal consumption in the 1971-1980 period may be used as the basic coefficient for estimating the amount of these metals required in 2000. In addition, we should consider the change in the national economic structure, the increased ratio of light industry and the decreased ratio of heavy industry (including the national defense industry, which is the heaviest consumer of nonferrous metals), the reduced accumulation rate, the state's policy to develop nonferrous metal, and so forth, and then obtain a general revised coefficient of 0.60 (the first three items being 0.87, 0.94, and 0.71, and the fourth item, which increases the utilization coefficient of nonferrous metals, being 1.05). Thus, with the average consumption coefficient of 0.037 for the 1971-1980 period as the base, multiplied by the revised coefficient 0.60, the amount of nonferrous metals required in 2000 will be 4 million tons (Table 3).

Table 3. Forecast on Amount of Nonferrous Metals Required in China

	Actual amount in 1980	1985	1990	1995	2000
GNP (100 million yuan)	4,172	5,100	7,140	11,300	18,400
Consumption coefficient	0.037	0.031	0.028	0.025	0.022
Amount of nonferrous metals required (10,000 tons)	124	160	200	280	400

2. The "Nonferrous Metal-Steel Ratio" Method

In the 1971-1980 period, the proportion of nonferrous metal output in steel output varied between 3.1 percent and 3.9 percent, averaging 3.46 percent. Based on the consumption amount, however, the average for the same period was 4.2 percent.

In the leading industrial countries of the world, the proportion of nonferrous metal to steel output is all above 4 percent. It is, for example, 7 percent in the United States, more than 4 percent in the Soviet Union, the FRG, England, and France, and 14 percent in Canada. It is rather low, 3 percent, in Japan, because it exports a large quantity of rolled steel, averaging more than 30 million tons a year. If calculated on the basis of its domestic consumption of some 70 million tons, the proportion should be above 4 percent (and Japan also imports nonferrous metals).

China's nonferrous metal proportion is very low. To take advantage of its abundance of nonferrous metal resources, to develop foreign trade, and to conform to the trend of an increase in the proportion of alloy steel and of the substitution of some aluminum for rolled steel, China's proportion of nonferrous metal should be raised to more than 5 percent. By that time, the nonferrous metal output will exceed 3.85 million tons, and approach the value as estimated by the consumption-coefficient method.

II. General Situation of Metallic Mineral Resources and the Degree of Assured Productivity

Since the founding of the People's Republic, the geological departments have achieved great success in the discovery of metallic minerals. China has iron, manganese, chromium, vanadium, and titanium among the ferrous metals as well as such nonferrous metals as rare earth, rare metals, rare elements, and precious metals. We can say that China is one of the few countries in the world with unique natural resources.

In the past 30 and more years, China's metal mining has undergone unprecedented developments. Its iron mines have a productive capacity of 130 million tons, enough to ensure the production of more than 30 million tons of pig iron. In the 1949-1980 period, ore from nonferrous metal mines increased at an average rate of 14.7 percent each year, and the grand total of nonferrous metals produced from domestic mineral materials exceeded 16 million tons.

However, mines are still a strikingly weak link in the steel and nonferrous metal industry, and the output of ore cannot meet the needs of smelting. In the steel industry, China has to import not only large quantities of rolled steel, but also large quantities of iron ore. In the nonferrous metal industry, with the exception of a few types (such as tungsten, tin, antimony, and mercury), it not only failed to take advantage of its strong points, but also had to import large quantities of nonferrous metals. In the future, the policy of "highly regarding metallurgy and slighting mining" and "taking steel as the determining factor in mining" must be changed. Economically, we must adopt a series of policies and measures that are advantageous to mine development, and organizationally, there must be a system suitable for mine construction, in order to change the backwardness of mine construction and to promote the smooth development of the metallurgical industry.

A. Iron Mines

China has iron deposits of more than 40 billion tons, and ranks third in the world after the Soviet Union and Brazil. However, few of its mines have rich ores. The average national grade is below 34 percent, while the lean and intermediate ores which have to be selected amount to more than 95 percent. The amount of rich ores is less than 5 percent, and those which can go directly into the open hearths and blast furnaces account for only 2.4 percent of the total national amount. In foreign countries, deposits of rich iron ores are estimated to be 140 billion tons, approximately two-fifths of total iron deposits. Australia, Brazil, the Soviet Union, and India all have many mines with rich ores. In the Soviet Union, for example, 17 percent of the rich ores can go directly into the furnaces. In Australia and Brazil, the grade of iron mines are 50 to 67 percent and 40 to 68.5 percent, respectively. However, the foreign countries with an annual steel output of more than 20 million tons are all confronted with the problem of the shortage of rich ores in varying degrees. Needless to say, Japan, England, and the FRG are poor in iron mines. In 1978, the United States' mining grade was below 34 percent, and France had no really rich mines to speak of. The Soviet Union was the country with the most rich mines, but its grade has dropped from 55 percent in 1949 to the present 35 percent, while lean mines are supplying 80 percent of the ores. Therefore, making use of the easily extracted and easily dressed ores has become the general trend.

The capacity of China's completed iron mines is 130 million tons. In 1980, the actual output of iron ores was 110 million tons. This output has dropped in the past 2 years, but there is still a potential of more than 20 million tons to be tapped. The capacity of the mines now under construction is 22.5 million tons, and these mines will be completed in 1985, according to plan. After deducting the losses due to natural causes, the capacity of China's iron mines will be maintained at about 130 to 140 million tons in 2000. Based on the demand for 95 million tons of steel, however, the productive capacity for iron ores should be 255 million tons in 2000, exceeding the estimated capacity by about 120 million tons.

There are two methods to meet the demand for iron ore in 2000: first, to build mines and second, to buy mineral ores.

As to natural resources, China already has a verified iron reserve of more than 40 billion tons. Although a very large portion of the deposits are hard to extract, hard to dress and located in places where the hydrologic conditions are complex and transportation is inconvenient, the productive capacity of those mines already completely constructed with a total deposit of 11 billion tons can still be expanded through tunneling, improvement, transformation, and mutual coordination. Besides, efforts can be made to complete those mines now under construction so that they can be put into operation according to schedule, and there is room for their expansion in the near future for an additional capacity of 50 million tons. In those mining areas where construction and utilization have not yet begun, there are favorable technical and economic conditions for about 6 billion tons of iron deposits to be included in the plans for iron-mine construction, and of these deposits, more than 60 million tons are ready for mining in the very near future. Should these visions come true, China will be able not only to supply enough iron ores for producing 77 million tons of steel, but also to basically meet the demand for the steel output of 95 million tons [in 2000] as required, since the small gap left can be filled with imports. Naturally, before the envisaged capacity can be put into operation, and especially after the operation of the Baoshan Iron and Steel Complex projects, there will be a fairly big gap in the supply of iron ores.

As to the funds and energy required, however, the realization of these visions will be very difficult. First, let us talk about the energy problem. For example, energy is in short supply in Anshan, Benxi, and the eastern part of Hebei. If arrangements cannot be made to supply energy from new sources, it would be hard to imagine how the construction of such large iron mine bases can be accomplished. Next is the problem of funds. In fact, the energy problem is also the problem of funds.

The problem of funds brings to mind one question which should be carefully considered: Is it possible to solve the problem of funds by curtailing the imports of rolled steel? Since the 3d Plenum of the 11th CPC Central Committee, and the implementation of the policy of readjustment in the steel industry, total steel output has increased from some 22 million to more than 27 million tons, including some 5.8 million tons which were urgently needed by the state in view of the general short supply (while some items in excessive supply were reduced). In the 1978-1981 period, more than 13 million tons of steel materials were produced for the state, but 34 percent (more than 4.6 million tons) of them were kept in warehouses instead of being put to use, and the stockpiling continues to increase year after year. This stockpiling, it should be pointed out, is attributed to rash importation. From 1970 to 1977, China's steel imports varied within a range of 2 to 5 million tons; but in 1978 and 1979, they were sharply increased to more than 8 million tons. At the same time, the steel in stock increased from 12.6 million tons at the end of 1977 (since 1972, the stock has remained steady at this level) to 20.66 million tons (close to the stock of the United States in 1977 and threefold that of Japan and England separately) at the end of 1981. From this, we can see that a very large portion of the imported steel has not played any effective regulative role, and only increased the stockpiling.

Steel, like other important materials, should be adequately stocked by the state. However, excessive stocking will mean waste and the tying up of funds. Based on imports of 8 million tons a year, the state has to pay a total of more than $3 billion in foreign currency, approximately equal to 9 to 10 billion yuan in RMB. If in the next several years we can reduce the imports and use more from the stock, the money saved can be used in constructing iron mines. (For example, if imports can be reduced by one-third, then in 5 years, we can raise 15 billion yuan, with which to build iron mines with a capacity of 100 to 110 million tons including the power stations and certain subsidiary facilities.) The feasibility of this proposal requires further study.

Another way is the importation of ores. For iron production, China is still short of 8 million tons of raw materials for pig iron. Based on an output of 37.5 million tons in 1985, 135 million tons of iron ores will be required. Even though the mines now under construction can be put into operation before 1985, as scheduled, the productive capacity will be only about 120 million, still leaving a very large gap, which will be even larger after the Baoshan Iron and Steel Complex is in regular operation. There is no doubt that we have to rely on imports. Generally, if the price is right and we are able to pay, the importation of a small quantity of rich ores to make up our shortage is a necessary measure. However, according to the forecast, China's steel requirement may reach 95 million tons in 2000, for which more than 70 million tons of pig iron and 255 million tons of ores have to be produced. If new mines are not built, and only the present mining capacity is maintained, then 50 to 60 million tons of rich ores will have to be imported every year until 2000. If each ton costs 100 yuan, we will have to pay 5 to 6 billion yuan each year for the purchase of ores. Therefore, importing rich ores can only be a supplementary expedient, which is inconsistent with our national policy for the development of the iron and steel industry.

It should be pointed out that China's investment in the iron mining industry is low, and not helpful to the development of the mining industry. In the Soviet Union, when the steel output reached 150 million tons, the investment in the iron mining industry was much higher, about 25 to 30 percent of the total investment in its steel industry. The proportion was raised to 33 percent during the Fifth 5-Year Plan and to 45 percent during the first 5 years of the Seven-Year Plan.

The conditions of China's iron resources are poor, since the ores are of a low standard and not easy to dress. The construction cost is also high. Therefore, some slight increase in investment is not enough. According to statistics, in the 31 years after the founding of the People's Republic the investment in mines amounted to only 20.16 percent. For 30 years, the investment in the mines of the Anshan Iron and Steel Co. amounted to about 30 percent of the total investment in the iron and steel industry, and even now, this company is still short of 1 million tons of raw materials for iron (equivalent to about 4 million tons of iron ores). The Panzhihua Iron and Steel Base has recently been built, complete with the required auxiliary projects. The investment in its mine construction amounted to 40 percent, and the ores are up to the required amount. The Shoudu Iron and Steel Co. investment in mines was 32 percent, and there are still some tasks to be wound up. All these companies have superior resources, and their investment in mines is above 30 percent. For the country as a whole, the investment in mines should not be below this proportion.

As to the system of operation, China has consistently adopted the old method of the combination of plant and mine, copied from the Soviet Union in the 1950's, which has restricted the development of the iron mining industry.

The Soviet Union carried out a structural reform in the 1960's, after which, the plants and the mines became separated, and many large companies were gradually established for joint extraction-dressing operations. The output of iron ores exceeded 400 million tons (in crude form) including more than 200 million tons of commercial ores. The structural reform has served as an impetus to development. According to the existing system of the iron mining industry in China, and along with the developing of the iron and steel industry, it has become increasingly apparent that the mines are some kind of appendage to the iron and steel enterprises. To utilize the iron resources more effectively and to give full play to the productive capacity of the mines, those large iron mining bases with good resources and concentrated deposits (such as the iron mines of Anshan, Benxi, eastern Hebei, and Panxi) should be separated from the metallurgical enterprises and operate independently as joint extraction-dressing companies for iron mines. They will then be able to serve all iron and steel companies in the same locality (instead of being restricted to any one of them), and also undertake the important task of supporting iron and steel companies throughout the country. This system will help in breaking down the old convention of "taking steel as the determinant factor in mining," and in promoting the development of the iron and steel industry. As to the running of local small and medium-size mines and mining by civilians, control should be strengthened in different forms.

B. Nonferrous Metal Resources

Mankind has discovered 64 types of nonferrous metals in nature, and China has all of them. For 7 out of the 14 main types (including tungsten, titanium, zinc, antimony, rare earth, tin, and molybdenum) China now ranks first in the world.

The availability of nonferrous mineral resources in China depends on the following four conditions:

1. Types of Minerals that Enjoy Distinct Superiority

China's tungsten, antimony, mercury, tin, and molybdenum are superior to others' not only because of their large quantities, but also their fine quality. The minerals are sufficient for domestic needs with some surplus for exports. Examples are as follows:

Tungsten: China's prospective reserve of tungsten accounts for more than 60 percent of the world reserve. Its industrial reserve (more than 50 percent of the world's total industrial reserve) and its tungsten concentrate output and exports all rank first in the world.

Since the founding of the People's Republic, China has exported more than 500,000 tons of Tungsten ores (in the 1950-1979 period). However, the structure of tungsten exports has remained unchanged for a long time, since mainly raw materials were exported. In recent years, again, exports have continued to decline because of the unstable quality of the tungsten concentrates. Although the smelting and processing industries have been initially set up, their products (such as tungsten filaments and hard alloys) are poor in quality and lack competitive power. The volume of their exports accounts for only about 2 percent of the total tungsten exports.

The main obstacles to the development of the rich tungsten resources lie in the backward technology, the obsolete equipment, and the lack of the necessary means of testing. Because of these obstacles, the requirements for producing quality products cannot be met.

What deserves attention now is that the chaotic exploitation by civilians is destroying national resources. Because of their poor technical resources, the utilization is very low (with a recovery rate of only 20 to 40 percent after extraction and dressing), and some valuable elements cannot be recovered.

In the past several years, gratifying achievements have been made in scientific research on hard alloys, as shown by the appearance of new techniques and new brands. The quality of products has been greatly improved.

In the future, development of the tungsten industry will still rely on exports. To change the present situation of this industry, to make good use of our superior tungsten resources, to increase the competitive power of our tungsten products on the world market, and to raise the proportion of semifinished products and manufactured products in the exports, so that China will develop from a country with rich tungsten resources into a country with a technically and economically advanced tungsten industry, we must in the future adopt a series of strong measures for an overall reorganization of the tungsten industry, step up our scientific research, and pay attention to the technical transformation of the existing enterprises.

Tin: China's tin reserve accounts for 15 percent of the total world reserve, and surpasses that of Indonesia. It ranks first in the world. In the 1949-1980 period, China's grand total of tin output exceeded 600,000 tons, and the highest annual output exceeded 30,000 tons. In recent years, because of the sluggish progress of mine construction and the lack of water, electricity, and tailing-storage facilities, the productive capacity could not be used to full advantage. Most of the ore-dressing plants of the Yunnan Tin Co. cannot carry out regular production for 4 to 5 months every year, and their tin output has been reduced by about 2,000 tons each year. In Guangxi, the first stage of work for the Dachang mine has basically been completed, but the lack of electricity prevents its operation and has affected the output of concentrates containing 4,000 tons of tin. China is a major tin-producing country. By 1980, it had exported a grand total of 400,000 tons. However, the exports have continued to drop each year, and in 1980, it dropped from the highest exports record of 30,000 tons down to 3,500 tons.

Both of China's tin-producing areas--Gejiu in Yunnan and Dachang in Guangxi--are multimetal paragenetic mines. In addition to tin, there are intergrowths of zinc, lead, copper, tungsten, bismuth, antimony, silver, sulphur, arsenic, cadmium, and gallium. Therefore, there is a promising future for the comprehensive utilization of these resources, with tin in the leading position. However, it should be noted that the comprehensive-utilization rate of the useful metals is very low (less than 50 percent in Dachang, Guangxi, and even less in the Yunnan Tin Co.). The recovery rate in ore dressing is also low, and waste is serious. The urgent task in China's tin industry is to increase the comprehensive recovery of the associated metals and to raise the rate of comprehensive utilization.

China has rich tin resources, but not many mines to supply them for construction. Geological work must be stepped up (particularly for the key mining areas).

In the mines of the Yunnan Tin Co., radon constitutes a serious health hazard to the workers. Up to now, about 1,000 persons have died of lung cancer. The task of expelling radon and reducing dust in the mines is now a very urgent one.

2. Types of Minerals That Have Good Potential

The output of rare earth, titanium, and zinc is now not high. However, if the problems of exploitation and comprehensive utilization can be satisfactorily solved, we can also tap the potential of these resources to good advantage. In addition, the prospects for the development of aluminum and lead are also very good.

Rare Earth: China has abundant reserves of rare earth (a total of 17 elements), more than threefold the total world reserve (excluding that of China). Its industrial reserve is about fivefold the world total industrial reserve. Its rare earth resources are concentrated mostly in Bayan Obo of Nei Monggol and next in Jiangxi and Guangdong. The varieties are quite complete, including the latest discoveries of this kind in the world. The mines in Jiangxi contain yttrium, samarium, europium, and terbium elements which are very rare in foreign countries. The heavy rare earth, in particular, contains 56 to 60 percent of ytterbium oxide. In foreign countries, the rare earth resources are mainly light rare earths. With the exception of Malaysia and Australia having small amounts of xenotine, there are practically no other countries with rare earth mines that have mainly heavy rare earths.

The total productive capacity of rare earths in the world (China not included) is 50,000 tons (oxidized rare earths), and about 25,000 tons of them are actually used. At present, China's total rare-earth productive capacity is second only to the United States in the world.

At present, the actual amount of rare earths used in the country is very small. The amount used in metallurgical [illegible] is only one-seventh of that of the United States, the amount used in the glass and ceramic industries is only one-twentieth that of Japan, and the amount used in yttrium oxide is only one-twenty-fifth of that of Japan. From this, we can see the urgent need to develop China's domestic market. China began to sell its rare-earth products abroad in 1978 on a trial basis. In 1981, 2,800 tons of rare earths were exported. Each year, Japan imported rare-earth products equivalent to 3,500 tons of oxide, and West Europe, about 3,000 tons. Rare-earth products are also wanted in the U.S. market. Therefore, China's rare earths have a good potential on the international market.

Titanium: In China, the verified reserve of titanium is more than one-fifth of the world reserve. Titanium resources are mainly concentrated in the Panxi area of Sichuan, and next in Guangdong, Guangxi, and Hebei.

Titanium was first produced in foreign countries around 1950, and the total output was 8.5 million tons. Now the size of titanium plants is generally 0.1 to 2 million tons in capacity, while China's plants now are only 10,000 tons in capacity. Great efforts are now being made to develop the titanium industry in the United States, the Soviet Union, Japan, and England. In 1950, the output of sponge titanium in the United States was only 45 tons; in 1980, its productive capacity had reached 26,500 tons. At present, the titanium industry in the Soviet Union ranks first in the world with a productive capacity of 40,000 tons. It is some 20,000 tons in Japan and 6,000 tons in England. Total output is more than 90,000 tons.

China began to produce sponge titanium in 1958, with a productive capacity of 60 tons a year. Now, it has increased to several thousand tons a year, and the quality of its sponge titanium has reached international standards. In 1980, 1,300 tons were exported. However, China's production scope is rather small, the largest being only 800 tons a year, while that of foreign countries is about 10,000 tons. It is generally agreed that 5,000 tons a year or more would be the best.

Titanium white is a titanium product produced in large quantities. The total world output of titanium white is about 2.7 million tons a year. In China, more than 90 percent of the titanium output is used in the titanium white industry, (in the United States, it was 92 percent in 1974). However, the production techniques are backward, the quality of products is poor, the scope of production is small (the largest being 5,000 tons a year), the variety is small and the output is low and not enough to meet domestic demand. Each year, a large amount has to be imported.

China has rich titanium resources as well as the technical resources for its production. The conditions are entirely favorable for accelerating its development. To bring into play the superiority of our titanium resources, we should step up scientific research on the techniques of ore dressing and the production of sponge titanium and titanium white, adopt advanced techniques and equipment, increase the exports of sponge titanium, titanium materials and titanium ingots, and strive to join the rank of the Soviet Union and Japan as the leading titanium-exporting countries. According to an estimate, the advantages for China's titanium products to enter the markets of the United States and West Europe are better than for those of the Soviet Union and Japan.

Aluminum: Aluminum is a metal that is commonly used and its output has increased most rapidly. In the 1949-1979 period, the world output of crude aluminum increased nearly 12-fold. Aluminum output accounts for 40 percent of the total output of nonferrous metals, and is higher than copper output. In 1980, the world output of crude aluminum totaled 12.6 million tons, the highest among all nonferrous metals.

China's total aluminum reserve ranks sixth in the world. According to the present comprehensive productive capacity of 400,000 tons a year, approximately 2 million tons of aluminum ores are required each year, and the reserves (according to the industrial reserve) may exceed 200 years.

China's aluminum is mainly hard aluminum monohydrate, mostly with an aluminum-silica ratio of 4:7, and is not easily soluble. However, its alumina content (55 to 70 percent) is higher than its foreign counterparts (45 to 55 percent). Furthermore, since China makes better comprehensive use of aluminum resources (such as the use of its byproduct gallium and the red clay residues for making cement), the production cost of alumina in China is lower than in other countries. However, the growth rate is rather low and the output is inadequate for domestic needs. In the 1950-1980 period, China imported a grand total of more than 2 million tons of aluminum.

Conditions in China are favorable for the development of the aluminum industry. It is one of the few countries in the world with abundant water and aluminum resources. For example, its exploitable hydropower resources are about 370 million kw, ranking first in the world, and the installed capacity already used is only 5 percent of the exploitable installed capacity. In addition, its coal reserve is huge, and its thermopower resources are plentiful. If the hydropower resources of the Huang He (in the northwest), the rich aluminum resources of Shanxi (where the deposit of fine-quality aluminum accounts for more than 30 percent of the total national deposit and the conditions for exploitation are favorable), and the huge coal resources are used in combination, the prospects of joint aluminum-hydropower development or joint aluminum-coal-electric power development are very promising.

China has its unique technology of producing hard aluminum monohydrate, and its major indices of recovery rate and alkaline consumption have reached advanced world standards. In the production of alumina, however, the energy consumption is twofold higher than in foreign countries where aluminum trihydrate or soft aluminum monohydrate is used as raw material in the Bayer process. This is going to be an important issue requiring urgent research and solution. Furthermore, electricity consumption is high in the electrolytic process, and for each ton of electrolytic aluminum, the consumption is 1,000 to 2,000 kwh higher than in the advanced countries. At present, the 135KA precalcined trough being tested in the Fushun Aluminum Plant has shown good results, and the indices of direct-current electricity consumption are up to advanced international standards. Our future task is to conduct technical transformation of the present electrolytic cells so that this energy-conservation technique can be quickly popularized in production.

Recently, three companies of the Mitsui system in Japan have successfully discovered the method of aluminum smelting in blast furnaces. The characteristics of this method are: (1) Raw materials required for smelting are few, and ores with a 30- to 40-percent aluminum content can go straight into the furnace. Thus, various types of low-grade bauxite, shale, and clay can be used. (2) The technical process of extracting pure alumina from the bauxite is reduced. (3) This not only saves a great deal of electricity (only 1,000 kwh required for each ton of aluminum) and lowers the production cost, but also makes it possible to generate power with the carbon monoxide produced from the burning furnace. According to an estimate, two 3,000-cubic-meter blast furnaces can produce 500,000 tons of aluminum, with 200,000 kwh of electricity as the byproduct, each year. The use of blast furnaces in aluminum smelting in industrial production will solve many difficult problems now confronting the aluminum-smelting industry. It may possibly completely replace the present electrolytic method and bring about a complete change in the technology of aluminum smelting.

Energy consumption in the processing of aluminum oxidation and electrolysis in China is much higher than in foreign countries, and the fuel outlay accounts for 40 to 55 percent of the total production cost (compared with about 25 percent in other countries). The waste of energy is also very serious. To make better use of our abundant aluminum resources, we should proceed with the research on the required technology or even buy foreign patent rights for it.

Lead, Zinc: The reserves of lead and zinc, especially the latter, are fairly rich, however, their present output is only 180,000 tons and 250,000 tons, respectively, and cannot keep pace with their consumption. In the 1950-1979 period, the total imports were 1.19 million and 460,000 tons, respectively. Now, imports are still relied on to make up the shortage, and China's superior lead and zinc resources are not well utilized. There are rich deposits of lead and zinc in the northwestern regions. They are close to energy resources and the economic results should be good. Therefore, they should be exploited on a large scale.

Pollution from lead plants is now serious. We should make positive preparations for the wet method, or other methods that are nonpolluting and less polluting, to be used in smelting.

3. Types of Minerals in Which We Are Self-Sufficient or Basically Self-Sufficient

Copper: China's copper reserve ranks fourth in the world. However, the mines are mostly poor. In China, mines with a grade of more than 1 percent are considered to be rich, and their deposits account for 36.8 percent of the total national deposit. Those with a grade of more than 2 percent account for only 6.4 percent, while those with a grade of more than 3 percent account for less than 1 percent of the total national deposit. In some associated mines, the grade of copper is even lower than that of some tailings. In the Daheishan copper mine of Jilin, for example, the grade of associated copper is only 0.03 percent, and in the Jinduicheng molybdenum mine of Shaanxi, the average grade of the associated copper is only 0.028 percent.

The grades of copper in several principal copper-producing countries are much higher than in China. In Zambia, the average grade is 3.5 percent, while in Zaire, the medium grade is 6 percent and even the "low grade" is about 2 to 3 percent.

At present, the deposits of the copper mines already constructed and utilized account for 49 percent of the total national deposit. The utilization rate is low and the output, ranking 11th in the world, cannot provide self-sufficiency. Most of the copper resources not yet developed are located in the remote frontier areas where transportation is inconvenient. The grade of ores may also be too low and conditions unfavorable for construction and investment. For a fairly long time to come, therefore, a certain amount of copper or copper ores have to be imported.

Nickel: China's nickel deposits are mainly concentrated in Jinchuan, where they account for more than 60 percent of the total national deposit. The utilization rate is fairly high, but the output, and the rates of extraction and recovery after dressing and smelting are low, resulting in the waste of large quantities of valuable resources. The situation is in urgent need of improvement.

4. Inadequate Resources of a Few Minerals

Chromium: Of the verified chromite deposits in China, more than 80 percent are spread out in Xizang, Xinjiang, Gansu, and Nei Monggol, where transportation is difficult and conditions for exploitation are poor. Furthermore, most of China's chromite is in the form of hard spinels which cannot be easily dissolved. Although its grade is not low, the per-unit power consumption in smelting exceeds 3,600 kwh, more than 1,000 kwh over the consumption for ordinary ores. Chromite is seriously deficient in China.

Platinum Metals: All these metals exist in the same place with other minerals and their reserve is very small. The deposits are mainly concentrated in the nickel mine of Jinchuan. The grade of platinum metals in China is low. For example, the grade of the associated ores is only 0.25 to 1.22 gram/ton, much lower than their foreign counterparts, and the output is very low, only 9 percent of the quantity required. They are among the scarce metals in China.

Gold: China does not have many gold mines, and about half of what it has cannot be developed in the near future. The primary gold and aventurine resources which can be utilized account for more than 90 percent of useful deposits. At present, one-third of the old mines are facing a resource crisis, and these mines account for 30 percent of the present productive capacity. The new deposits discovered in geological prospecting each year are not enough to offset the consumption in the same year, and there is an urgent need to discover reserve bases. Furthermore, China's technology and equipment for gold production are backward, and the scientific research facilities are inadequate. They are all in urgent need of improvement and transformation.

III. Problems and Suggestions

A. Energy Conservation

The metallurgical industry belongs to the energy-intensive sector. In 1980, the total energy consumption of this industry exceeded 82 million tons of standard coal in China. Of this amount, more than 70 million tons, 12 percent of total national energy consumption, were consumed in the iron and steel industry. China is now short of energy resources. Many enterprises cannot operate at full capacity, and their equipment cannot be used regularly. For example, the 1.7-meter rolling mill in the Wuhan Iron and Steel Co. and the Fushun Aluminum Smelting Plant whose economic indices are fairly high, cannot maintain their regular production, or are forced to reduce output because of power shortage. Some new enterprises cannot be put into operation according to schedule and suffer serious losses for the same reason. Therefore, the metallurgical sector, like other sectors of the national economy, can only develop itself through energy conservation.

In fact, there is great potential in China's metallurgical sector. In 1980, the comprehensive energy consumption per ton of steel was 2.04 tons of standard coal, whereas it is only 0.96 ton in the Soviet Union, 0.9 ton in the United States, 0.75 ton in the FRG, and only 0.68 ton in Japan. China's steel output was only one-third of Japan's, but its energy consumption is the same as Japan's. This shows the great energy waste in China's metallurgical sector. If the energy consumption per ton of steel can be lowered to less than 1.2 tons of standard coal, then, based on a steel output of 77 million tons, the total consumption in the iron and steel industry will be less than 92 million tons, or less than 114 million tons for a steel output of 95 million tons, the estimated amount required [in 2000]. The potential for energy conservation in China's metallurgical industry can be tapped in the following ways:

1. Improvement of Product Mix

The purpose of improving the product mix is to reduce the serious waste of energy as a result of a higher ratio of pig iron to rolled steel.

a. Lowering the pig iron-steel ratio: According to an estimate, the lowering of this ratio by 0.1 point in the country now means a saving of 2.5 million tons of energy. Based on a drop from 1.02 in 1980 to 0.75 in 2000, a net drop of 0.27 point, more than 6.7 million tons of standard coal can be saved by this means alone.

b. Raising the rolled steel-steel ratio: In 1980, this ratio was 0.73. According to statistics, if the present rolled steel-steel ratio can be raised by 0.1 point, it will mean an increase of 300,000 tons of rolled steel. Therefore, we should raise the ratio of continuous casting and lower that of steel casting. If the rolled steel-steel ratio can be raised to 0.83 in 2000, with a net increase of 0.1 point, it will mean an increase of 3 million tons of rolled steel output.

2. Increased Recovery and Utilization of Residual Heat and Energy

In China, the recovery rate of residual heat and energy from its iron and steel industry is only 20 percent. If this residual heat and energy can be fully recovered, more than 2.7 million tons of standard coal can be saved. Foreign countries attach great importance to their recovery and utilization. Japan's technical efficiency in energy conservation is quite high. From its blast furnaces (of more than 2,000 cubic meters), 80 percent of the residual pressure from the furnace tops is utilized for power generation, 70 percent of the gas is recovered from the converters, another 70 percent of energy is recovered from the dehydrating bellows, and 50 to 60 percent of the heat is recovered from the hot blast copulas. The use of a dry coke-quenching method is also quite common.

3. Restriction of Coking With Indigenous Methods

Since the capacity of mechanized coking is not sufficient in China, large quantities of coke are produced with indigenous methods. According to a survey, 2 tons of coking coal is required for producing each ton of indigenous coke, meaning the consumption of an extra one-half ton of coal, compared with the production of 1 ton of mechanized coke. In 1981, for example, more than 6.6 million tons of indigenous coke was produced (the lowest indigenous coke output in recent years), and an extra 3.3 billion tons of coking coal was consumed, and at the same time 2.5 billion cubic meters of gas (equivalent to 2.1 million tons of fuel coal) was allowed to escape from the coking furnaces along with the loss of 750,000 tons of coking products. As for energy utilization, the utilization rate in producing each ton of indigenous coke is about 40 percent lower than in producing each ton of mechanized coke. Therefore, every effort must be made to increase the output of mechanized coke and to reduce that of indigenous coke; to raise the prices of coking products to arouse the enthusiasm in the use of mechanized means, and to encourage those coal-producing provinces where the capacity for mechanized coking is insufficient, to build coking furnaces.

4. Minimizing Use of Cupola Furnaces for Smelting

The iron and steel plants in Shanghai, Tianjin, and Tangshan have sent out huge quantities of pig iron (about 6 million tons a year throughout the country) for steel smelting in cupola furnaces, and each ton of steel thus produced requires the consumption of an additional 270 kg of standard coal, or an additional 1.6 million tons of standard coal a year. If these plants were to ship out steel instead of pig iron, a great deal of heat loss could be saved.

5. Carrying Out Technical Transformation and Technical Renovation

After World War II and particularly since the energy crisis in the 1970's, many new technologies and techniques and much new equipment have appeared in the iron and steel industry in the world, and all these innovations were related to energy conservation.

In China, energy consumption is high in the metallurgical industry. In addition to management and other causes, the high consumption is mainly due to the obsolete technology and equipment, the low technical standards, and low heat efficiency. Therefore, it is imperative that technical transformation and technical renovation be carried out with energy conservation as the central task.

Blast furnaces: In China, the utilization coefficient of blast furnaces is low (only 1.48 for the key enterprises throughout the country in 1979) and the coke ratio is high (553 kg). The main reason is the average capacity of the blast furnaces is small (an average of 705 cubic meters for the key enterprises, and among them are 35 small ones with a capacity of less than 300 cubic meters. These small ones account for 44 percent of the total number. If the small and medium-size blast furnaces of the localities are included, the average capacity can only be 88.6 cubic meters, and those with a capacity of less than 200 cubic meters will account for about 90 percent of the total number). In addition, the equipment is obsolete and the technology is backward. It is suggested in all enterprises and areas where conditions are favorable, the average capacity of blast furnaces should be increased along with technical transformation in combination with major equipment repairs. Every effort should be made to adopt the new and effective foreign methods of energy conservation, such as use of the differential between super pressure (more than 1 atmospheric pressure) and furnace top pressure to generate power and to increase the hot blast, the use of dehydrating bellows, the evening up of ore sizes, the feeding of concentrates and grogs, the blowing of coal ashes in large quantities, using top-burning hot blast furnaces, raising the utilization coefficient of blast furnaces, and further lowering the coke ratio. Since the 1950's, Japan has begun to use large, modern blast furnaces, and as a result, all their economic indices quickly rose to the highest rank in the world. Since the 1970's, the Soviet Union has gradually enforced the policy of dismantling all small blast furnaces of less than 300 cubic meters. This shows that increase in the capacity of furnaces is an important means of energy conservation.

Kilns: In China's iron and steel enterprises, the average heat efficiency of heating furnaces and pit furnaces is less than 30 percent. Therefore, we must pay special attention to study the manufacture and application of thermo-insulator and refractory materials, the new structure of energy-saving furnaces, the hot-working system of kilns, the automatic control of instruments and meters, and so forth in order to raise the heat efficiency to 60 percent and to approach the world standards of the 1970's.

Rolling Mills: Most of the steel rollers in China are obsolete and of low efficiency, and the products turned out by them are so poor that few of them are up to the required standards. We should renovate and transform these rolling mills with the new technology of the 1970's and in a planned way. In the composition of rolling mills, we should continue to raise the proportion of rollers for steel plates (strips) and pipe (in 1980, the proportion of plates and pipe in China was only 30 percent; in the industrially developed countries, it is generally above 60 percent. In the Soviet Union, despite its backwardness in this respect, the percentage is more than 50 percent).

6. Further Popularizing the Techniques of Top-Blown Oxygen Converters and Continuous Casting for Energy Conservation

Top-blown converters: This method of steel smelting has been most quickly popularized since the 1960's and, compared with the open hearth, it can save generally 70 percent in energy. This measure of energy conservation is universally recognized. Steel smelting in converters has also been greatly developed in China. However, since we neglected to conserve and recover the motive power and generally failed to recover the converter steam, oxygen consumption was high because of the high dissipation (actual oxygen consumption doubled the designed amount) and the waste of raw materials was fairly serious (the consumption of molten iron per ton of steel was about 100 kg more than in Japan). The energy consumption was even higher than in the use of open hearths, and thus hindered the further development of converters. In 1980, China's converters turned out only 40 percent of the total steel output, whereas in the United States, Japan, England, France, and the FRG, the proportion of converter steel is all more than 60 to 70 percent. With the exception of the Soviet Union, many countries have reduced the proportion of open-hearth steel (and Japan has eliminated it completely). In China, however, it still accounts for 32 percent of the steel output, while its side-blown converters, which consume most energy, still produce 8 percent of its steel.

Compared with a top-blown converter, a side-blown converter consumes 50 to 100 kg of pig iron, equivalent to 50 to 100 kg of standard coal, for every ton of steel. The quality of steel is poor and the smoke and dust cannot be recovered. At present, China has altogether 82 side-blown converters which produced more than 2.5 million tons of steel, and consumed an extra 130,000 to 260,000 tons of standard coal. They should be systematically transformed into top-blown converters in the near future.

On the basis of using more scrap steel, increasing the types of steel smelted by blowing, and reducing the consumption of steel and iron materials as well as motive power, we should create the necessary conditions for open hearths to be transformed into top-blown, or composite top-blown oxygen converters.

Continuous casting: By using the technique of continuous casting (which requires no steel ingot molds, casting bricks or cogging mills), we can directly save an average of 40 to 70 kg of standard coal on each ton of steel, and at the same time raise the rate of successful operation by 8 to 10 percent. In other words, each ton of steel can be made into 80 to 100 more kg of rolled steel, which means a saving of 30 more kg of standard coal.

Continuous casting has been in popular use in foreign countries since the 1960's. The proportion of continuous casting is highest in Japan--71.5 percent. In 1980, among the major steel-producing countries, 11 of them had a continuous casting rate of more than 20 percent. Continuous casting is developing rather slowly in China, and its proportion was only 7.5 percent in 1981. Only 29 continuous-casting machines were put into operation with a capacity of about 4 million tons. However, since their productive capacity was not fully utilized, only 2.5 million tons of billets were produced by the continuous-cast process in 1981. In the future, in building new continuous-casting machines, we must pay attention to scientific management, carefully keep up the maintenance and examinations, and use the available equipment to full advantage. At present, in Japan, the construction of continuous-casting machines has been combined with the steel-rolling process to create the conditions for heat feeding, continuous casting, and continuous rolling. Now thin plate can be produced by continuous casting and continuous rolling, thus further reducing energy consumption. This technique may show us the direction for future efforts to be made in scientific research.

7. Strengthening the Regeneration and Utilization of Scrap Metal

The recovery and reuse of scrap metals provides a major source of raw materials for the metallurgical industry, and some people call them "secondary resources."

In the iron and steel industry, an additional ton of scrap steel in smelting means a saving of 1.7 tons of high-grade iron ore, 0.88 ton of standard coal, and 280 kg of limestone. Therefore, the use of more scrap steel is an important measure of energy conservation and of lowering the pig iron-steel ratio. This method compared with that of using iron ores for iron smelting followed by steel smelting, can save 74 percent in energy, 90 percent in raw materials, and 40 percent in water. China has rich resources of scrap steel and iron. According to statistics, in the 1971-1980 period, the amount of scrap steel and iron recovered each year was about equivalent to 50 percent of the same year's steel output. In 1980, China recovered 17 million tons of scrap steel and iron. On calculation, this means a saving of 29 million tons of high-grade iron ores and 15 million tons of standard coal a year.

As for nonferrous metal, according to 32 years' statistics, the amount of regenerated scrap metals recovered by China accounted for 11.2 percent of the total output of nonferrous metal, while foreign countries generally recovered more than 20 percent. According to statistics, nearly 30 percent of the copper consumed in the world came from scrap copper. The United States is the country with the most primary copper and the largest consumer of copper. The amount of scrap copper regenerated and recovered in the United States is also the largest, 20 to 50 percent. The proportion of regenerated and recovered zinc was even higher--50 to 90 percent. In England, secondary aluminum in the 1977-1980 period amounted to 61, 59, 52, and 48 percent of the primary aluminum output of each of the same years. In China, the potential for recovery of regenerated nonferrous metals is fairly good. At present, about 60 percent of the nonferrous metals are directly used on a one-time basis by the industrial departments, while the remaining 40 percent are discarded. Furthermore, some old equipment and spare parts are written off every year. These discarded materials, together with domestic waste, can add up to quite a large amount. If the proportion of regenerated nonferrous metals is raised from about 9 percent to about 20 percent of the total output, then the output of nonferrous metals can be increased from several tens of thousand tons to more than 100,000 tons each year, equivalent to the combined output of several large smelting plants.

Recovery and utilization of discarded nonferrous metals mean not only resource conservation, but also low production cost and low energy consumption. According to an analysis, the energy consumption to produce 1 ton of secondary aluminum is only 4 to 5 percent of the consumption for primary aluminum, and the fuel consumption for producing 1 ton of secondary copper is only one-fifth that for primary copper. From this, we can see that the recovery and utilization of discarded nonferrous metals is an important energy-conservation measure.

The Soviet Union and some West European countries have set up national standards for discarded nonferrous metals and classify them accordingly for safekeeping and treatment. China should take this method as a good point of reference. It should set up and strengthen the system of recovering, controlling, and processing scrap metals and fix reasonable prices to encourage the recovery and regeneration of these metals.

B. Rational Exploitation and Utilization of Mineral Resources

1. Raise the Recovery and Comprehensive Utilization Rates in Dressing and Smelting, Lower the Loss and Depletion Rates

In the past several years, the recovery rate in the dressing and smelting of the principal metals has been higher than ever before, and great progress has been made in comprehensive utilization. At present, 25 percent of the gold, nearly 10 percent of the silver, platinum metals, and rarified elements, and 70 percent of the sulphuric acid raw materials are recovered in the process of nonferrous metal production. Compared with the advanced standards of foreign countries, China's are still very backward. In some mines, the loss rate is as high as 30 percent, about 10 percent above the best historical record, and the depletion rate also reaches about 30 percent, 5 to 7 percent above the best historical record. The depletion rate of ores in the underground metal mines of China, compared with that of foreign countries using the same extraction method, is generally 10 to 15 percent higher, and sometime even more than double. Each year, more than 20 million yuan is being spent on ore dressing simply because of the inclusion of waste rock in the nonferrous metal industry. The productive capacity is also reduced by 10,000-15,000 tons. In 1981, the recovery rates of zinc, nickel, antimony, tungsten, molybdenum, and mercury in ore selection were all reduced.

While lowering the depletion rate and raising the recovery rate, some developing countries have also attached great importance to the comprehensive utilization of mineral resources, and the scope of the utilization has continued to expand along with the rising standards. In the comprehensive utilization of copper, for example, the United States has recovered all the associated elements with hardly anything wasted. The amounts of rhenium, arsenic, selenium, and tellurium were almost up to 100 percent of their total output, while the gold, silver, and copper recovered are more than 40 percent of their total output. In the Soviet Union, the comprehensive utilization rate reaches 87 to 90 percent in the smelting system.

Many metal mines in China (including the ferrous metal mines) have mostly multielement intergrowths of more than 10 or even scores of types. In Bayan Obo of Nei Monggol, for example, more than 20 types of valuable elements are available for comprehensive utilization. However, it has for a long time been developed as only an iron mine. Because of the backward technology in dressing for smelting, large quantities of rare earth and other useful elements could not be recovered. Up to the first half of 1980, with the exception of the several tens of million tons of lean ores which have been piled up unused, nearly 50 million tons of ores have entered the furnaces with or without dressing, and more than 1.7 million tons of oxidized rare earth, 40-fold the total amount of oxidized rare earth required in China, were simply thrown away. The loss of niobium pentoxide also exceeded 50,000 tons, equivalent to the total output of 10 large niobium mines. Hunan's Qibaoshan mine is an extra large comprehensive mine containing gold, silver, copper, lead, zinc, sulphur, iron rare metals, and many elements. Because of the lack of a comprehensive assessment, it was exploited only for pyrite. In 1980, 710,000 tons of the primary ores were extracted, and only 60,000 tons went through dressing. The loss of various metals totaled 50 million yuan in value. The Jinshan nickel mine is second only to the Sudbury mine of Canada in size, but its total metal-recovery rate was less than 50 percent. The smelting plant of the mine had an even lower rate for the recovery of precious metals. The rate was 34 percent for platinum, 20 percent for palladium, and 43 percent for gold. It was not until the transformation of the work process in recent years that the gold-recovery rate has been greatly raised. However, the waste is still serious and China's are still far below advanced world standards. According to the statistics of 11 key enterprises dealing in nonferrous metals in 1980, there were 25,000 tons of 21 different useful metals available for recovery from the raw materials, and only 12,600 tons of 19 types were actually recovered. The comprehensive-utilization rate was only 50 percent.

2. Problems in the Comprehensive Utilization of Pyrite Mines

The problem of comprehensive utilization of pyrite has not yet attracted due attention. Besides sulphur, China's pyrite mines contain large quantities of other valuable elements, such as iron, copper, lead, zinc, and other precious metals. After being used to produce acid, for example, the cinders still contain 48 to 50 percent of iron. If the 3.5 to 4 million tons of cinders from the chemical industrial plants (those small plants discharging less than 40,000 tons not counted) which consume about 5 million tons of pyrite a year are added to the 1 million or more tons from the metallurgical and light industries, the total amount of cinders discharged will be about 5 million tons, which can be used to produce more than 2 million tons of iron. If these cinders contain 0.2 percent of copper, 0.3 percent of lead, and 0.4 percent of zinc, then each year, we lose 10,000 tons of copper, 15,000 tons of lead, and 20,000 tons of zinc. Again, the Dalian Chemical Industrial Plant has each year discharged 210,000 tons of cinders into the sea. This means a loss of 90,000 tons of iron, 37.8 tons of copper, 96,000 grams of gold, and 9,345 kg of silver.

Foreign plants producing acid with pyrite have always regarded the comprehensive utilization of cinders as an important support for the industry and paid the same attention to cinders as they did to iron ores. They have accordingly devised many methods for their recovery. In the FRG, for example, they use the medium-temperature chlorination method; in Japan, the high-temperature chlorination method; and in Italy, the magnetic-reduction method. In the FRG, the Duisburg Plant not only processed the cinders of its own country, but also imported them from Belgium, France, Holland, and Finland. This plant has been processing cinders since 1953, and handled more than 4 million tons in the peak year. In the United States, sulphur is mostly used for producing acid, and the amount of pyrite used is not large. However, it has imported from Japan the technology of high-temperature chlorination and calcined most of the cinders (the average amount used each year being about 800,000 tons) for refining pig iron, while at the same time recovering the various useful metals.

On the other hand, these cinders also contain poisonous substances, such as lead, arsenic, mercury, and cadmium, which may cause serious pollution and endanger people's health if they are discharged untreated. The Dalian Chemical Industrial Plant, for example, discharged into the sea the cinders which contain arsenic more than 780-fold the amount permitted according to public health standards. As a result, all fish and shrimp have vanished in the nearby sea area.

China began to study the problem of comprehensive utilization of pyrite cinders in 1970. Several leading comrades of the central authorities have issued special documents and allocated more than 17 million yuan for the research projects. Some success was already achieved, but, unfortunately, the experiments were halted in 1978 when the goal was almost within reach.

We therefore appeal to the leadership of the State Science and Technology Commission, the Ministry of Chemical Industry, the Ministry of Metallurgical Industry, and the State Environmental Protection Bureau to give this research project strong support, and call on all the plants to keep the cinders carefully for future use, or to export them for foreign exchange with which to finance the research project. Appropriate measures should also be taken to prohibit their being dumped into the rivers, lakes, or seas.

3. The Problem of Protecting Mineral Resources

a. Prohibition of Unauthorized Mining: At present, when mineral products are free for all, many civilians have set up small kilns and built small mines in a state of anarchy. Their predatory mining has caused great damage to mineral resources. According to statistics, there are now nearly 10,000 mining sites with millions of people working. Some of these mine sites have been set up by the communes and production brigades, and others by individual households. In some locations, their indiscriminate excavation has caused serious damage to the sites; in other locations, these people are competing with the state-run mines for ores, water, and electricity, plundering state resources, and even endangering some large mines having tens of millions of tons of deposits in which the state has invested millions of yuan.

b. Check the Practice of Looking for the Rich and Abandoning the Lean Ores: Because of the problems of the prices of mineral products, and of the methods and techniques required in mining, many mines have abandoned the lean, or hard-to-get ores in favor of the rich and easy-to-get ones, thus causing great losses of resources. Guangxi is an important manganese base. Since there is no ore-dressing ground, it has for a long time extracted only the rich ores in blocks and abandoned 100,000 to 200,000 tons of dispersed ores including the associated cobalt, nickel, cadmium, and other useful elements. The two large magnesite mines in Haicheng and Dashiqiao are China's major magnesia-producing areas (their verified deposits being 83 percent of the national deposit and 30 percent of the total world deposit). So far, no ore-dressing plant has been built in these mines and only grade-1 rich ores are being sold, while the grade-2 and grade-3 ores, being more than 70 percent of the total amount, cannot be utilized. This situation must be changed quickly.

C. The Problem of Environmental Pollution

In China, some progress has been made in environmental protection among the metallurgical enterprises. The 32 key iron and steel enterprises have set up altogether 448 sets of equipment for the treatment of various types of waste water and waste gas, while 20 other key nonferrous metal enterprises have set up 253 sets of equipment for the treatment of waste water and dust. Polluted and waste water is being treated to a certain extent and the discharge of waste gas has also been reduced to a certain degree. However, the progress is still slow and the problem of pollution is very serious. Among the key iron and steel enterprirses, the work on 72.5 percent of the environmental protection facilities is still in arrears. The key nonferrous metal enterprises are also behind schedule in 40 percent of the same facilities.

According to statistics at the end of 1979 on only 13 key iron and steel enterprises, their annual discharge amounted to 2.1 billion cubic meters of polluted water, 490 billion cubic meters of waste gas, 12.4 million tons of waste residues (not including the waste rock and tailings of mines), and 6 billion cubic meters of fuel gas. The Baotou Iron and Steel Co. each year discharged into the atmosphere and the sea about 3,000 tons of fluorine, causing extensive pollution. In some localities, the atmospheric content of fluorine was 70-fold higher than the state standard. Because of the large amount of waste water containing phenol being discharged, the phenol content of the river water exceeded the state standard 300-fold. The eight large aluminum plants discharged 130,000 tons of polluted water each day, 14 million cubic meters of waste gas each hour, and 7,000 tons of hydrogen fluoride each year. (Air containing 1 to 2 gm of hydrogen fluoride per cubic meter may easily cause chronic fluoride poisoning.) According to the statistics of 12 key nonferrous metal smelting plants, their daily discharge of waste water is 467,000 tons, their hourly discharge of waste gas is more than 5.8 million cubic meters, and their annual discharge of residues is 1 million tons. Each year, these plants brought in their mineral concentrates containing more than 500,000 tons of sulphur. Half of this quantity was recovered and made into sulphuric acid, and the other half was discharged as one of the "three wastes." According to the statistics of 1976, the key nonferrous metallurgic enterprises discharged 600 tons of mercury, more than 500 tons of cadmium, 3,000 tons of arsenic, and 14,600 tons of lead each year. All these figures are only from the key enterprises. The problem of pollution is far more serious among the small local factories and mines.

Such a situation is certainly attributed to the state's economic difficulties, since it cannot appropriate more funds for developing environmental-protection facilities. However, the more important reason is that some government departments, plants, mines, and enterprises have not realized the need for pollution prevention and environmental protection. Therefore, it is suggested that the departments concerned should provide more active leadership over the work of environmental protection, set up a system of rewards and punishments, invite the broad masses of scientific and technical personnel as well as the workers to offer their ideas and plans, and adopt advanced technical measures to strengthen the treatment and recovery of the "three wastes."

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Chapter 7. Outlook for China's Food Supply and Demand

by Wang Hengwei [3769 1854 3634]

Summary: Food is an indispensable basic material for human survival and social development. A fine state of food supply and demand in a country is a concrete indication of the country's material civilization and a powerful impetus to its spiritual civilization. After generally describing the state of food supply and demand in three different periods of the past and analyzing the present state in detail, this article presents its views summarized as "one high and four lows" in production, "three lows and two reliances" in consumption, and "one sufficiency and two deficiencies" in dietetic nutrition. In the forecast section, the article gives a meticulous estimation of the changes in the diet composition and the nutrition level, and a comprehensive projection of the amounts of the 10 major food items required. It also analyzes the feasible output, and deduces the state of food supply and demand in 1990 and 2000. Finally, it discusses the new meaning which should be given to the food concept and the question of opening new avenues of food production in order to resolve the contradiction between supply and demand in China. [End of summary]

Food is an indispensable basic material for human survival and social development. A fine state of food supply and demand in a country is a concrete indication of the country's material civilization and a powerful impetus to its spiritual civilization. It is connected in numerous ways with the people's well-being, social stability and unity, healthy economic development, scientific and cultural progress, national prosperity, and even the international position occupied by a country.

China's state of food supply and demand can be observed in three different historical periods. Before the liberation, the country was in a state of stagnation or even regression, and the people had difficulty in making a bare living. (All the years with high grain or other crop output and the largest number of cattle in inventory were prior to 1940, and from then, until the liberation, the laboring people could not have a full meal.) The 26-year-period prior to 1978 was a period of national growth with enough to keep people warm and free from hunger. (The annual output of most food varieties, such as cereals, wheat, tubers, maize, rapeseed, sugar cane, beetroot, fruits, pork, beef, mutton, aquatic products, as well as the number of pigs and sheep in inventory, all surpassed the highest records in varying degrees before the liberation, and the rates of their increase all exceeded 90 percent. However, such a high output was offset by the high rate--66.7 percent--of population growth in the same period with the result that per capita output hardly showed any increase, and even dropped in some items. On the whole, however, the feeding of the people was assured by relying on China's own resources.) The 4 years after 1978 witnessed a sustained growth and an all-round improvement. (The annual output of all food items, with the exception of certain varieties, was at an all-time high, per capita output rapidly rose to a new level, and the rate of increase in output, per capita output included, surpassed the previous period in most items. Despite certain defects in the circulation and distribution of food, there were more real benefits for both the urban and the rural population.) These conditions are quantitatively analyzed in annexed Table 1 and Table 2.

What will become of the food supply and demand in the future? This is a question of universal concern to the people, as well as a question to be answered in working out long-range plans for economic and social development. This article will analyze the present state of food supply and demand, forecast the state in 1990 and 2000, and discuss some problems in improving this state in order to explore the prospects of future development.

I. Present State of China's Food Supply and Demand

New China's achievement in food production and supply has been an object of universal praise. However, a comparison of China's food production and consumption and its dietetic nutrition with those of some representative countries, or with rational demands, will show its superiority in some respects and many problems in others. The present state can be summarized in three points:

A. "One High and Four Lows" in Food Production

High Total Output: At present the total output of nearly all China's food products ranks very high in the world (see annexed Table 3 for details). In 1980, for example, China's output of grain, peanuts, rapeseed, and sesame all ranked second; its meat and fresh eggs ranked third; and its sugar cane and beetroots ranked fifth. In 1979, its output of pears ranked first, apples ranked fourth, and citrus ranked fifth. In 1978, its aquatic products ranked third in the world.

Low Growth Rates: From annexed Table 4, we can see that in the 1952-1980 period, China's grain output increased 95.6 percent, slightly higher than in the Soviet Union, but lower than the world average including that of the United States and India. It was only 33 percent of the increase rate in Yugoslavia (287.9 percent). Instead of increasing, China's output of soybean, gaoliang, and millet was reduced 16.3, 39.2, and 52.8 percent, respectively. The output of sugar cane increased 220.5 percent, higher than the world average, but lower than in the United States, and was only 71 percent of Brazil's increase rate (310.5 percent). In the 1953-1979 period, China's citrus output increased 161.9 percent, higher than in the United States and Italy, but lower than the world average. The output of Japan and Brazil was as high as 534.4 percent and 709.5 percent, respectively. In the 1953-1978 period, China's output of aquatic products increased 179.5 percent, higher than in the United States and Japan, but lower than the world average, including that of India. The increase rate in the Soviet Union was 372.5 percent, more than doubling China's.

Low Per Capita Food Output: Let us take some of the major food items for example. In 1980, China's average per-mu output and the highest per-mu output of some provinces, municipalities, and regions, compared with the average per-mu output in the world, is higher in some and lower in other items.

However, it is mostly lower than the per-mu output of the countries with the highest per-unit output. (See annexed Table 5 for details) There are four different results in this comparison. First, China's average per-mu output of some items, such as cereals, wheat, maize, peanuts, and sesame, is higher than the world average, but lower than in those countries with the highest per-unit output. Second, China's average per-mu output of soybean, rapeseed, sugar cane, and beetroot is lower than the world average. Third, the per-mu output of the provinces, municipalities, and regions with the highest per-unit output is higher than the world average, but lower than in those countries with the highest per-unit output, and the items under this category are wheat, maize, peanuts, rapeseed, sesame, sugar cane, and beet root. Fourth, in China, the per-mu output of Ningxia's cereals and Shanghai's soybeans is the highest not only in the country, but also in the world. A comparison of the per-unit output of China's other food items with that of other countries also shows great differences.

Low Per Capita Output: From annexed Table 6, we can see that China's per capita output of various major food items is lower than the world average. In this table are listed five representative countries (India, the United States, the Soviet Union, Australia, and Yugoslavia). The per capita output of many food items (such as grain, meat, aquatic products, eggs, and fruits) in China, though higher than in India, are much lower than in the other four countries. Compared on a per capita basis with the top output of other countries in the world, China's grain output of 652 jin and edible plant oil of 5.6 jin is only 27.5 and 8.9 percent, respectively, of that of the United States; its 5.2 jin sugar, 24.5 jin meat, and 2.3 jin milk output is only 1.2, 6.7, and 0.3 percent, respectively, of that of Australia; its 9.1 jin aquatic-product output is 13.4 percent of that of the Soviet Union; and its output of 5.3 jin in eggs and 13.8 jin in fruit is only 14.7 percent and 2.6 percent, respectively, of that of the United States.

Low Labor Productivity: Agricultural labor productivity can serve as a yardstick of several indices. A rough comparison of four indices is shown in annexed Table 7, from which we can see that in 1980, each agricultural laborer on the average supported 3.1 persons, was responsible for 4.8 mu of farmland, and produced 1,704 jin of cereals, and 77 jin of meat. A comparison of China's agricultural labor productivity with that of five other countries listed in the table (such as India, Japan, the United States, the Soviet Union, and Australia) shows that besides surpassing India in meat production and equaling India in cereal production and in the number of persons supported, China's agricultural labor productivity is far behind that of the other four countries. In these five countries, the highest productivity per agricultural laborer is as follows: number of persons supported, 102.1 (the United States); farmland undertaken, 1,804.5 mu (Australia); and cereal and meat production, 248.274 jin and 16,120 jin, respectively (both in the United States).

B. "Three Lows and Two Reliances" in Food Consumption

Low Per Capita Consumption: In a comparison of the consumption of various major food items per person each year among several representative countries of the world (namely, India, Egypt, Japan, Canada, the United States, France, the Soviet Union, and Australia) in the 1957-1977 period, including that of China in 1980 (see annexed Table 8 for details), and the comparison is made item by item, we can see that China's grain (processed grain) consumption of 413 jin was higher than that of any comparable country; its vegetable consumption of 183 jin was higher than that of India, Canada, the Soviet Union, and Australia, but lower than the 202 to 234 jin in the United States, France, Japan, and Egypt; its meat consumption of 22.2 jin was higher than that of India and close to that of Egypt, while that of the other countries ranged from 51 jin to more than 247 jin; its egg and aquatic-product consumption at 4.5 jin and 8 jin was higher than that of India in both items, while that of the other six countries was 26 to 32 jin and 16 to 88 jin, respectively. Its consumption of dry and fresh fruits of 12.7 jin, sugar of 7.6 jin, oil and fat of 7.6 jin, and milk of 2.5 jin was far lower than that of other countries which ranged from 55 to 226 jin, 34 to 112 jin, 21 to 58 jin, and 30 to 308 jin, respectively. In terms of general per capita annual consumption, China's was 661.7 jin, only higher than the 560.2 jin of India, while that of all other countries was above 930, with the United States on top with 1,330 jin.

Low Food Commodity Rate: China's food commodity rate is commonly low, reflecting a state of self-sufficient or semiself-sufficient economy according to the circulation of agricultural products. In 1980, for example, the gross food commodity rate (based on the proportion of the procured amount in total output) was 18.2 percent, and the net commodity rate (based on the proportion of the procured amount, minus the amount sold back to the producers), in the total output was 11 percent. With the additional factor of negotiated purchase, the actual gross commodity rate and actual net commodity rate was 21.4 and 14.2 percent, respectively. As to the commodity rate of animal products (based on the proportion of the procured number in the total inventory number), it was 43.7 percent for pigs, 1.95 percent for beef cattle, and 6.1 percent for sheep of the carcass type. The gross and net commodity rates of edible plant oil was 56.5 and 53.1 percent, respectively. The commodity rates of materials for making sugar and readymade sugar are both fairly high at 90.5 and 89.2 percent, respectively.

Low Food Safety Rate: According to international practice, a yearend stock of food, equivalent to 17 to 18 percent of the total consumption in the current year (or a stock sufficient for 2 months' consumption) should be kept as reserve at a minimum safety rate. There is as yet no distinct classification of foodstuffs, since some of them (such as meat, eggs, milk, and aquatic products) are perishable. However, because of their uneven production and the need to ensure market supply, it is permissible to use this safety rate for all foodstuffs. From annexed Table 10 showing China's five major foodstuffs and their safety rates, we can notice two different characteristics. First, since 1957 the safety rates of grain, edible plant oil, and sugar have been fairly high, while the rate of pigs has been about the minimum in certain years, and that of fresh eggs was always below minimum. Second, in 1980, compared with 1977, with the exception of edible plant oil, whose safety rate rose from 64.9 percent (237 days) to 80.3 percent (293 days), those of several other foodstuffs had markedly dropped. The safety rate of grain dropped from 65.5 percent (239 days) to 45 percent (164 days); that of sugar, from 62.3 percent (227 days) to 36.8 percent (134 days); that of pigs, from 18.3 percent (67 days) to 8.5 percent (31 days); and that of fresh eggs, from 10.9 percent (40 days) to 3.1 percent (11 days).

Reliance on Bringing in Food in Many Areas: In the case of commercial grain, for example, the number of provinces, municipalities, and autonomous regions in the country which are more than self-sufficient and have surplus grain to be sent out, has been reduced, while the number of those requiring grain to be brought in has increased. In 1953, compared with 1981 with regard to the total amounts brought in and sent out, the total amount of grain sent out has dropped from 15.732 billion jin to 2.672 billion jin, while the amount of grain brought in was increased from 9.721 billion jin to 24.66 billion jin. As to the number of provinces, municipalities, and autonomous regions where the movement of grain took place, the number of those sending grain out was reduced from 20 to 7 (namely, Jilin, Anhui, Hunan, Henan, Jiangsu, Zhejiang, and Jiangxi), while the number of those bringing in grain was increased from 8 to 20. In 1981, Hubei and Guangxi were the only province and autonomous region which neither sent out nor brought in any grain. This situation has compelled the state to import more grain or to take out its reserve grain.

Reliance on Importing Many Foodstuffs: In international trade, China has both imported and exported such food items as grain, edible plant oil, and sugar. Such action is necessary to provide variety and produce economic results. However, if we compared net imports with net exports, we will see that our reliance on imports has increased. Before 1960, for example, China exported more grain than it imported, but the situation has been reversed since 1961. In the 1960's and 1970's, net imports rose from 55.39 billion jin to 78.43 billion jin, and average net imports each year increased from 5.54 billion jin to 7.84 billion jin, and reached 21.2 billion jin in 1979. In 1980 and 1981, net imports reached 23.6 and 27.1 billion jin, respectively, and China became the third largest grain-importing country in the world after the Soviet Union and Japan. In the past several years, the increase in grain imports was mainly due to the state's reduction of grain procurement in order that peasants might have a period of rest and recuperation. Before 1975, China exported more edible plant oil than it imported. In the 1976-1980 period, the situation was reversed. Net imports increased from 70 million to 220 million jin, and its proportion rose from 3.4 to 4.1 percent of domestic consumption. With the exception of some particular years, China has always relied on imports of sugar to supplement its domestic shortage, and in 3 decades from the 1950's to the 1970's, its net imports amounted to 665,000 tons, 4,011,000 tons, and 6,543,000 tons, respectively, and their proportion in total domestic sales in these decades rose from 11.8 to 32.4 and 31.5 percent. In 1980 and 1981, net imports accounted for 19 and 23 percent of domestic sales, respectively.

C. "One Sufficiency and Two Deficiencies" in Dietetic Nutrition

In order to maintain its physiological activities and functions, the human body must obtain six major nutrients from food, namely, water, protein, fat, inorganic salt, sugar, and vitamins. The amount of nutrients to be extracted from food for human beings varies according to sex, age (body weight), and intensity of labor. Based on their research results and practical experiments, WHO, the relevant organs of certain countries, and the Association of Physiology of China have time and again revised their recommended amounts of nourishments in the daily diet. The general tendency is toward a reduction of the numerical value in an effort to find the most suitable way to meet the dual requirements of quantity and quality in nutrition.

According to international practice, calories, protein, and fats are used as the three major indices in diet to measure the level of nutrition in a country's diet. It is generally agreed that if the food for each person each day can supply 2,400 calories, 75 grams of protein, and 65 grams of fat, the requirement will be basically met. From annexed Table 9, we can see the world average in 1977: 2,571 calories, 68.8 gm of protein, and 62.2 gm of fat. It shows the deficiencies in protein and fat, or malnutrition, which is a global problem.

Because of differences in national traits, historical traditions, living habits, natural conditions, and economic standards among different countries, diet composition and nutritional standards are different for different people. At present, however, diet composition can generally be classified according to the proportions of protein and fat sources into three types: primarily plant products, primarily animal products, and both plant and animal products. Their nutritional makeup is as follows:

Type of diet	Primarily plant products	Primarily animal products	Both plant and animal products
Calories			
Numerical value (cal)	approximately 2,500	3,350 -3,600	2,500 -3,000
Proportion of plant products (percent)	Above 90	55-73	Approximately 80
Protein			
Numerical value (gm)	Below 77	100-110	80-90
Proportion of animal protein (percent)	Below 15	50-70	45-55
Fat			
Numerical value (gm)	Below 50	100-170	65-75
Proportion of plant fat (percent)	55-80	20-40	40-55
Representative countries	China, India, Egypt, et al.	The United States, Canada, France, the Soviet Union, Australia, et al.	Japan, et al.

What is the present standard of China's dietetic nutrition? Based on the basic numerical data they have on hand, some departments at home and abroad have worked out their rough estimates. According to the calculations of the Planning Bureau of the former Ministry of Agriculture, each person in the country on the average absorbs 2,465 cal, 64.4 gm of protein, and 29.9 gm of fat each day. The result of calculations by the State Statistical Bureau is 2,666 calories, 72.9 gm of protein, and 41.2 gm of fat, while our calculation for 1980 was 2,450 calories, 63.9 gm, and 28.3 gm, respectively. Besides, the FAO and the U.S. Census Bureau are both of the opinion that in 1980, the amount of calories supplied in China to each person each day was basically up to, or slightly above the required 2,400 calories. From these rough estimates, we may come to the conclusion that the estimate of about 2,500 calories, about 65 gm of protein, and about 35 gm of fat for each person per day according to the present level of dietetic nutrition for China's population is fairly accurate. In other words, although the amount of calories supplied in China's diet is basically sufficient, the protein and fat are still a little below the required standard.

Furthermore, K.H. Besell [phonetic], a German nutriologist, pointed out that the proper proportion of calories produced by the basic nutrients in total dietetic caloric intake should be 13 to 17 percent from protein, 30 to 35 percent from fat, and the rest from sugar (carbohydrate). In 1977, the average world standard was 10.9 percent from protein and 22.3 percent from fat, below the lower limit in both cases. The following table shows the proportions of calories produced by the basic nutrients according to the three different diet types. These data show that for the primarily plant type, the proportion of calories from the basic nutrients is far from adequate, because of the low amounts contained in both protein and fat. The amount of calories from protein in both of the two other types is up to the required proportion, although the third type seems to be slightly better. As to calories from fat, however, the third type is inadequate, while the second type of primarily animal products supplies far more, above the upper limit of the required amount, meaning an obvious waste of fat.

Type of diet	Primarily plant products	Primarily animal products	Both plant and animal products
Total amount of calories in diet			
Proportion of protein calories (percent)	9.8-11.0 (10.0 for China)	12.2-13.2	12.3-13.3
Proportion of fat calories (percent)	10.6-16.5 (10.6 for China)	35.0-42.7 (27.0 for the Soviet Union)	23.1-24.4
Representative countries	China, India, Egypt, et al.	The United States, Canada, France, the Soviet Union, Australia, et al.	Japan, et al.

II. Forecast of China's Food Supply and Demand

From the general description of the state of China's food supply and demand in different historical periods and from the concrete analysis of its present state, as already given, people can see two realities: First, the serious shortcoming. Because of the many problems accumulated in the past 30 years, the future task of catching up cannot be easy. Second, the good potential. Efforts in the past several years have ended the state of sluggish progress, and the future task of catching up cannot be hopeless.

How is one to forecast the future state of food supply and demand? Many forecast methods have been introduced by futurologists, some of them useful. Since the statistics on China's agriculture are fairly complete, some comrades have used the method of trend extrapolation. In forecasting the food output of 2000, for example, some people have used the recorded average annual growth rate of 2.4 percent in the 1953-1980 period as the basis and predict an average annual growth rate of 2 percent, resulting in a per capita amount of more than 800 jin, or more than 960 billion jin in total output. Others have used the average annual growth rate of 2.8 percent in the 1970-1981 period as the basis and believe that there is hope for the major target of 1 trillion jin to be exceeded in 2000. Still others have used the per capita amounts required at the turn of the century, of 650 jin, 800 jin, and 1,000 jin as the bases and projected the total required amounts of 780 billion jin, 960 billion jin, and 1.2 trillion jin, respectively. Then after a concise feasibility analysis, they believe that an average annual increase of more than 2 percent can be attained so that a medium level of 800 jin per person may be possible in 2000. Some foreigners have also made some forecasts. In his book "The Global 2000 Report," Dr Barney estimated that in 2000, China will consume 604 billion jin of cereals, produce 584 billion jin, and need to import 20 billion jin. In his book, "China and the World Food System, China's Economy in Global Perspective," Dr Barnett estimated that, based on an output of 664 billion jin in 1979 and an average increase of 2.2 percent every year, the output in 2000 will be 1.048 trillion jin, while the amount of food required will increase at an average rate of 3 percent each year. His implication is that output will still be short of demand in 2000. Since the data used and the depth of analysis in these and similar forecasts are different, it is inevitable that the results obtained are also different. Nevertheless, these results should be of good reference value.

Here, the method of forecasting is different from those already mentioned. This is the procedure followed: First, a fairly minute estimate is made of diet composition and their nutrition levels in the future. This is followed by an overall estimate of the required amount of food and a concrete analysis of the feasible output. Finally, we come to a conclusion on the state of balance between food supply and demand.

A. Estimated Diet Composition and Nutrition Level

What human survival depends on is not food as generally assumed, but rather the six major nutrients contained in food. However, the amount of nutrients is determined by diet composition and is also the basis of the amount of food required. Therefore, in forecasting China's future state of food supply and demand, we must first of all estimate the trend of developments in diet composition and nutrition level.

In 1959, the State Science and Technology Commission organized the public health departments to conduct a survey on the state of nutrition in the country and it was then discovered that each day, each person of the urban and rural population absorbed an average of 2,060 calories and 57 gm of protein. In comparing these two figures with our rough estimate of the amount of dietetic nutrition per person in 1980 (2,450 calories and 63.9 gm of fat), we will see that in 21 years, the amount of calories increased 18.9 percent (390 calories) at an average annual rate of 0.83 percent (equivalent to 18.6 calories), while the amount of protein increased 12.1 percent (6.9 gm) at an average annual increase of 0.55 percent (equivalent to 0.33 gm). The margin of increase as shown is rather small. If, however, the average annual increase rate we have been using all along is used in the tendency extrapolation, then in 2000, the amount of calories will be 2,820 and that of protein will be 70.5 gm.

This comparison and deduction tell us that if the diet composition of mainly plant products (which accounted for 93.9 percent of the 1980 total and whose protein and fat contents are very low) will continue, then in 2000, only the amount of calories will be increased while protein and fat can hardly reach the required average amounts of 75 gm and 65 gm, respectively. Along with the sustained development of the national economy and the continued increase in national income, most people will no longer rely on a vegetarian diet as a source of increased nutrition, and will need more meat, eggs, milk, and aquatic products. According to a survey conducted by the statistics departments on 1,200 working households, the amount of pork consumed by the urban residents of Beijing increased from 24.4 jin in 1978 to 39.2 jin in 1981; that of eggs, from 8.5 to 12.9 jin; that of plant oil, from 7.2 to 11 jin; that of fresh melons and fruits, from 43.7 to 56.8 jin; and that of pastry of various kinds, from 6.7 to 10.6 jin. The consumption of beverage, wines, and sugar have continued to increase every year, but that of grain dropped from 365.4 jin to 316.5 jin, thus leading to a change in diet composition. For foodstuffs, the ratio of expenditure for animal and plant products changed from 28:72 in 1978 to 34:66 in 1981. A similar change is also occurring in the diet composition of peasants throughout the country. Therefore, the diet composition in China will gradually change to one of both plant and animal products.

Since China's present food output is low, its resource utilization needs to be more rational, and the change in the composition of food and the increase in dietetic nutrition will take a very long time. We have chosen the projected plan shown in Table 1, after weighing the pros and cons and studying the feasibility of the diet composition and the nutrition level.

Table 1. Diet Composition and Nutrition Levels: Concealed Calculations for 1980, 1990, and 2000

	1980 corrected calculations				1990 estimate				2000 estimate			
	Per capita consumption	In each person's daily supply			Per capita consumption	In each person's daily supply			Per capita consumption	In each person's daily supply		
	1 year (jin)	Calories	Protein (gm)	Fat (gm)	1 year (jin)	Cal-ories	Protein (gm)	Fat (gm)	1 year (jin)	Cal-ories	Protein (gm)	Fat (gm)
Total	661.7	2.450	63.9	28.3	736.1	2.585.5	70.01	39.79	832.5	2.706.7	79.88	56.86
Animal products	40.4	148	6.8	13.2	79.3	225.7	10.31	18.43	135.5	332.8	17.87	27.15
Plant products	621.3	2.302	57.1	15.1	656.8	2.359.8	59.64	21.36	697	2.373.9	62.01	29.71
Grain	413(502)	2.108.8	54.80	8.59	400 (480)	2.079.0	56.63	9.96	380 (466)	1.982.8	58.26	12.50
Cereals	339(420)	1.646.5	37.72	4.44	304 (375)	1,476.9	33.81	4.00	280 (347)	1,360.3	31.15	3.68
Soybeans	12	67.6	5.97	3.02	18	101.3	8.95	4.54	30	168.9	14.92	7.56
Tubers (discount grain)	42	303.9	5.71	0.69	54	390.7	7.39	0.89	50	361.8	6.79	0.82
Other miscellaneous grains	20(28)	91.8	5.40	0.44	24 (33)	110.1	6.48	0.53	20 (28)	91.8	5.40	0.44
Edible oils	4.6	57.7		6.30	8.0	98.6		10.96	12	147.9		16.44
Sugar	7.6	41.3	0.03		9.6	62.2	0.04		12	65.3	0.05	
Vegetables and melons	183	41.6	1.80	0.10	220	50.0	2.17	0.12	255	58.0	2.52	0.14
Fresh fruits	12.6	6.4	0.01	0.02	18	9.3	0.03	0.02	36	18.5	0.06	0.04
Dried fruits	0.2	1.4	0.03	0.11	0.6	3.4	0.08	0.27	1	6.8	0.16	0.05
Tea	0.4	1.9	0.14	0.02	0.7	3.3	0.25	0.03	1	4.7	0.36	0.04
Condiments, wine		44.0	0.30			54.0	0.44			90.0	0.61	
Meat	22.2	94.5	4.88	8.33	30	127.9	6.66	11.24	40	170.6	8.73	14.99
Animal oil	3	36.6		4.06	4	48.8		5.42	5	61.0		6.78
Milk	2.5	2.3	0.11	0.12	15	13.8	0.64	0.72	42	38.6	1.78	2.01
Eggs	4.5	8.7	0.78	0.61	12	23.2	2.07	1.62	24	46.4	4.14	3.24
Honey	0.2	0.8	0.001		0.3	1.3	0.002		0.6	2.1	0.003	
Aquatic products	8	4.8	1.07	0.04	18	10.7	2.42	0.10	24	14.3	2.22	0.13

Notes: 1. Figures for 1980 are corrected calculations based upon relevant statistics.
2. Figures in parentheses refer to unprocessed grain.

The salient features of these estimates are that total grain consumption will be slightly reduced along with reduced cereal consumption and increased soybean consumption, while the consumption of other foodstuffs will be increased in varying degrees, and the margin of increase in the consumption of plant oil, fresh and dried fruits, milk, eggs, and aquatic products will be more apparent, thus leading to better dietetic nutrition. The following changes may occur in 1990 and 2000:

1. Change in Diet Composition

If we compare the average annual food consumption per person in 1990 and 2000 with that of 1980 in terms of food items, we will see a slight reduction in food grain (processed grain) from 413 jin to 400 jin and 380 jin. However, since the amount of soybean will rise from 12 jin to 18 and 30 jin, the daily supply of protein from food will increase from 54.8 gm to 56.63 gm and 58.26 gm, while that of fat will increase from 8.59 gm to 9.96 gm and 12.5 gm. The daily consumption of plant and animal oil combined will be increased from 7.6 jin to 12 jin and 17 jin; and the consumption of sugar each year, from 7.6 jin to 9.6 jin and 12 jin; that of vegetables, from 183 jin to 220 jin and 255 jin; that of fresh and dried fruits, from 12.7 jin to 18.5 jin and 37 jin; that of meat, from 22.2 jin to 30 jin and 40 jin; that of eggs, from 4.5 jin to 12 jin and 24 jin; that of milk, from 2.5 jin to 15 jin and 42 jin; that of aquatic products, from 8 jin to 18 jin and 24 jin; and other items, such as tea, honey, condiments, and wine will increase by a fairly wide margin. In terms of total amounts, the total amount of food consumption per person each year in China will increase from 661.7 jin to 736.1 and 832.5 jin, an increase of 11.2 and 25.8 percent, respectively. Although the level in 2000 will still be below the level of some 900 jin as required for the diet composition of both the plant and animal product type, the people will still have the feeling that there has been a marked increase.

2. Change in Nutritional Levels

According to the diet composition just mentioned, the daily amount of nutrition per person throughout the country will increase markedly. Calories will increase from 2,450 calories (of which 6 percent comes from animal products) in 1980 to 2,586 calories (8.7 percent from animal products) in 1990 and 2,707 calories (12.3 percent from animal products) in 2000; that of protein, from 63.9 gm (10.6 percent animal protein) to 70 gm (animal protein 14.8 percent) and 79.9 gm (animal protein 22.4 percent); and that of fat, from 28.3 gm (plant fat 53.4 percent) to 39.8 gm (plant fat 53.7 percent) and 56.9 gm (plant fat 52.3 percent). In other words, the dietetic nutritional level of the Chinese people in 2000 with regard to calories and protein will be above the internationally recognized national average, although they will be a little short of fat. This type of diet composition will raise the proportions of calories produced from protein and fat in the total food calories from 10.4 percent and 10.6 percent in 1980 to 10.9 percent and 13.9 percent in 1990 and 11.9 percent and 18.9 percent in 2000. This will be a big step toward a rational proportion.

Forecasting unit	Chinese Academy of Agricultural Science	Our estimates
Diet composition (annual consumption per person, in jin)		
Processed cereals	264	280
Beans	36	30
Tubers	72	50
Edible plant oil	12	12
Sugar	12	12
Meat	48	40
Animal oil	--	3
Eggs	24	24
Aquatic products	12	24
Milk	48	42
Vegetables	240	255
Fresh fruits	96	36
Dried fruits	--	1
Others	--	** 1.5
Total	864	832.5
Daily amount of food nutrition per person		
Calories	2,898*	2,706
Protein (gm)	72.5*	79.9
Fat (gm)	49*	56.9
Proportion of calories from basic nutrients in total amount of calories		
Protein (percent)	10.1*	11.9
Fat (percent)	15.1*	18.9

*These figures have been revised following our own computations. The original numerical values are: Calories, 2,400; protein, 72.5 gm; and fat, 73 gm.

**Includes 1 jin of tea and 0.5 jin of honey.

Now, we take the opportunity to list our estimates along with those of the Chinese Academy of Agricultural Science (above) for the purpose of explaining that provided our national resources permit, and the diet composition is properly readjusted, an approximately correct total consumption amount in 2000 will yield better nutritious results. It will also help resolve the contradiction of protein and fat shortage even though the caloric amount is sufficient, and thus improve people's physical quality.

B. Forecast of the Required Amounts of Major Food Items in China

According to the third national census, China's total mainland population (not including that of Hong Kong, Macao, Taiwan, Jinmen, and Mazu; same rule applies

Table 2. Demand for Major Foodstuffs and Annual Growth Rate, 1981-2000

	Domestic demand (100 million jin)			Average annual growth rate (%)			2000 compared with 1980 (-fold)	Remarks (factors considered in forecast)
	1980*	1990*	2000*	1st 10 years	2d 10 years	20 years		
Grain (unprocessed)	6.648	8.000	9.200	1.9	1.4	1.64	1.38	Losses reduced from 5.4 billion jin to 3 billion jin
of which: soybean	156.7	278	514	6.0	6.3	6.15	3.30	Including 30 percent for oil pressing, seed and fodder
for: daily consumption	4.935	5.328	5.460	0.8	0.2	0.50	1.11	
fodder	1.020	2.000	2.650	7.0	3.6	5.25	2.79	
seed	545	480	460	−1.3	−0.4	−0.85	0.84	Proportion of seed in output reduced because of higher per-unit output
industry	74.5	140	350	6.5	9.6	8.00	4.70	Basically same as growth rate of industrial output value; conservation required
increased reserve for current year	18.5	22	50					
Edible oils	86.5	138	211	4.8	4.3	4.60	2.44	Total reserve and loss of following items are:
of which: plant oil	57.5	93	149	4.9	4.8	4.85	2.59	420 million jin in 1990; 500 millin jin in 2000
animal oil	29	45	62	4.5	3.3	3.90	2.14	60 " " 200 " "
Sugar	64	110	150	5.6	3.2	4.35	2.34	350 " " 600 " "
Vegetables, melons	1.798	2.470	3.120	3.2	2.6	2.8	1.74	2.8 billion " 6 billion "
Dried, fresh fruits	129.3	213	470	5.1	8.2	6.67	3.63	740 million " 2.6 " "
Meat	234	336	495	3.7	4.0	3.85	2.12	300 " " 1.5 " "
Milk	26.3	175	519	20.9	11.5	16.10	19.73	850 " " 1.5 " "
Eggs	50.5	135	298	10.3	8.2	9.28	5.90	180 " " 1 " "
Aquatic products	87.8	205	268	8.8	3.8	6.30	3.39	500 " " 1 " "
Total	9.123	11.782	14.761	2.6	2.3	2.44	1.62	

Notes: 1. Required amount for 1980 is based on corrected computations from relevant statistics.

2. Forecast amounts required for 1990 and 2000 include reserve and loss factors.

[* 1980 figures are rough estimates; 1990 and 2000 figures are forecasts.]

to the rest of this article) on 1 July 1982 was 1,008,170,000. If the work of family planning is carried out satisfactorily in the future, and there are only 1.7 births per couple, then in 1990 and 2000, the mainland population will be kept below the 1.11 billion and 1.2 billion levels. With these as the base figures, and according to the consumption amount required by the food composition as estimated, in addition to the amounts required for production, (such as seed, fodder, and industrial purposes) and for reserve, or the amount of loss (the amounts of imports and exports will be considered in the section dealing with the balance between supply and demand), the required amounts of major food items in the country will be listed in Table 2.

1. Required Amounts of Individual Foodstuffs in the Country

a. The amount of grain (in terms of unprocessed grain) required and its consumption will undergo the following changes:

The amount of grain for domestic requirements will be increased from 664.7 billion jin to 800 billion jin and 925 billion jin, the average growth rates in the first and the second 10 years being 1.9 percent (equivalent to 13.53 billion jin) and 1.4 percent (equivalent to 12 billion jin) each year, or an average annual increase of 1.64 percent (equivalent to 12.77 billion jin) in 20 years.

	1980 corrected calculation		1990 estimate		2000 estimate	
	100 million jin	percent	100 million jin	percent	100 million jin	percent
Total	6,647	100.0	8,000	100.0	9,200	100.0
Of which: soybean	155.7	2.3	278	3.5	514	5.6
Used for: Daily consumption (product of population multiplied by average ration per person)	4,935	74.2	5,328	66.6	5,460	59.3
Fodder	1,020	15.3	2,000	25.0	2,850	31.0
Seed	545	8.2	480	6.0	460	5.0
Industry (soybeans used for processing oil deducted)	74.5	1.1	140	1.8	350	3.8
Increased reserve for current year	18.5	0.3	22	0.3	50	0.5
Surplus: spoilage	54	0.8	30	0.4	30	0.3

The amount of soybeans for domestic requirements will be increased from 15.57 billion jin to 27.8 billion jin and 51.4 billion jin. The proportion in the total required amount of grain will be increased from 2.3 percent to 3.5 percent and 5.6 percent. The average annual increase in the first and second 10 years will be at the rates of 6 percent (equivalent to 1.22 billion jin) and 6.3 percent (equivalent to 2.36 billion jin), or 6.15 percent (equivalent to 1.79 billion jin) in 20 years.

b. The amounts of other food items for domestic requirements are obtained individually by multiplying the population with the average consumption amount per person, with the addition of the amounts of reserve and losses. Their actual amounts and the average annual growth rates are all listed in Table 2.

2. Required Amount of Total Food Supply in the Country

The so-called total required amount refers to the sum total of various food items. This concept is introduced so that the changes in the required amount can be comprehensively studied. The total required amount of foodstuffs in China (statistics incomplete) will increase from 912.3 billion jin in 1980 to 1,178,200,000,000 jin in 1990 and 1,476,100,000,000 jin in 2000. The increases will be 29.1 percent (265.9 billion jin) in the first 10 years, 25.3 percent (297.9 billion jin) in the second 10 years, and 61.8 percent [sic] (563.8 billion jin) in 20 years. The average annual increase will be 2.6 percent (equivalent to 26.59 billion jin) in the first 10 years, 2.3 percent (equivalent to 29.79 billion jin) in the second 10 years, and 2.44 percent in 20 years (equivalent to 28.19 billion jin).

C. Analysis of Feasible Output of Major Foodstuffs in the Country

The method used here to analyze the feasible output of major foodstuffs in 1990 and 2000 in the country is mainly based on the present state of production. Then we explore the trend of development, suggest due measures to increase the output, work out the quantitative increases, and finally arrive at the feasible output after taking all factors into consideration. Table 3 shows the feasible output, the per capita output, and the average progressive rates of increase in different periods.

1. Grain (Including Soybean) Output

Since the sown acreage for grain crops is becoming smaller and smaller, the area of reclaimed farmland is limited, and the index of multicropping is already quite high, the increase in grain output will mainly rely on higher per-mu yields. The three major measures are as follows:

a. Further Readjustment of Crop Distribution According to Local Conditions: The readjustment of crop distribution in the past several years has produced remarkable results, and should be continued throughout the country. Two points should deserve particular attention: First, on the basis of readjusting the price parity of different crops and ensuring that the sown acreage is stabilized at 1.7 billion mu, the sown acreage of soybean should be increased

Table 3. Estimate of Output of Major Foodstuffs in China, Per Capita Output, and Average Annual Increase, 1981-2000

	Actual amounts in 1980		Estimated amounts for 1990				Estimated amounts for 2000				1981-2000
	Output (100 million jin)	Per capita output (jin)	Output (100 million jin)	Per capita output (jin)	Rate of increase, first 10 years (percent)	Per capita rate of increase, first 10 years (percent)	Output (100 million jin)	Per capita output (jin)	Rate of increase, second 10 years (percent)	Per capita rate of increase, second 10 years (percent)	Output growth rate (percent)
Grain (unprocessed)	6,411	652	8,000	720	2.2	1.0	9,250	770	1.5	0.7	1.9
Of which: soybeans	158	16	280	25.2	5.9	2.1	516	43	6.3	5.5	6.1
Edible oils	84.3	8.6	138	12.4	5.1	3.7	214	17.8	4.5	3.7	4.8
Of which: plant oil	55.3	5.6	93	8.4	5.3	4.1	150	12.5	4.9	4.1	5.1
animal oil	29	3	45	4.1	4.5	3.2	64	5.3	3.6	2.6	4.0
Sugar	51.4	5.2	110	9.9	7.9	6.7	155	13	3.5	2.8	5.7
Vegetables and melons	1,800	183.2	2,500	225	3.4	2.1	3,200	267	2.5	1.7	2.9
Dried and fresh fruits	135.8	13.8	220	19.8	4.9	3.7	490	40.8	8.3	7.5	6.6
Meat	241	24.5	343	30.9	3.2	2.3	510	42.5	4.0	3.2	3.8
Milk	27.3	2.8	185	16.7	21.1	20.2	533	44.4	11.2	10.3	16.0
Eggs	52	5.3	137	12.3	10.2	8.8	310	25.8	8.5	7.7	9.3
Aquatic products	89.9	9.1	210	18.9	8.9	7.6	310	25.8	4.0	3.2	6.4
Total	8,893	904	11,843	1,068	2.9	1.7	14,972	1,248	2.4	1.6	2.6

Notes: (1) Population figures: 982.55 million in 1980. Figures for 1990 and 2000 separately projected as 1.11 billion and billion.

(2) Estimated amounts of meat and animal oil in this table are roughly based on 89 and 11 percent of meat output.

from 108 million mu (6.2 percent) in 1980 to 140 million mu (8.2 percent) in 1990 and to 175 million mu (10.2 percent) in 2000. At the same time, some successful experiences, such as those already tried out in Heilongjiang over 10,000 mu with a per-mu output of 330 jin as the result, should be popularized so that the per-mu output of soybean throughout the country will be raised from 146 jin to 200 jin and 295 jin, and the total output will reach 28 billion jin and 51.6 billion jin. Such a readjustment, if accompanied by rotational cropping and intercropping in a rational way will increase subsequent grain output to such an extent that it will not only offset the loss from the shrinking farmland but also show a net increase of 12.2 billion jin and 53.8 billion jin [in 1990 and 2000, respectively].

Second, we can also readjust the relationships between grain crops and cash crops on a national or regional scale. For example, some areas in Sichuan and Jiangxi are not suitable for cotton while some areas in Shandong and Henan are not suitable for grain. Again, the areas in several provinces north of the Great Wall are suitable for beetroots but not for grain, while the situation along the Huang He valley and south of it is exactly the reverse. If we conduct unified planning and readjust the crops on a national scale in a rational way, we can raise the per-mu output of the readjusted areas at least 80 to 100 jin; and if only half of these areas, about 5 million mu, are readjusted, the grain output can be increased 400 to 500 million jin.

b. Increased Application of Organic Fertilizers, Rational Use of Chemical Fertilizers: This is an important and universally appliable measure to increase soil fertility and to raise per-unit output. Increased application of organic fertilizer can help increase the organic substance of soil, harmonize the contents of nitrogen, phosphorus, potassium, and trace elements, and improve soil quality and stimulate the effects of chemical fertilizers in raising output. China has rich organic fertilizer resources, such as straw, human and animal excreta, methane production residue, duckweeds, river and pond mud, urban garbage, sewage slurry, domestic waste water, and the waste liquid in papermaking with ammonium sulfite pulp, all of which are suitable for application. Jiangsu Province has paid great attention to the application of organic fertilizers, and the soil of its farmland generally contains 2.5 to 3.5 percent of organic substance, with an average per-mu output of 997 jin. This is a good example of the use of organic fertilizers in paddy fields for raising output. The Northwest Water Preservation Institute has confirmed that if the soil's organic substance is increased from 0.3 percent to 2 percent in arid land where the rainfall is 400 to 500 mm, then the grain output for each millimeter of rainfall will be increased from 0.25 jin to 1.8 jin, thus sharply increasing the per-mu output from 100 jin to 800 jin. According to our estimate, if the increased application of organic fertilizer can raise the organic substance of the present 700 million mu of medium- and low-output grain farmland to 0.3 percent and 0.6 percent, then the average per-unit can be raised by more than 30 jin and 60 jin, and the total output can be increased 21 billion jin and 42 billion jin.

As to the utilization of chemical fertilizers, there are now certain irrational practices to be corrected, such as the uneven distribution (varying from some 10 jin to 200 to 300 jin in actual weight per mu), the unharmonious ratio (since the ratio of nitrogen, phosphorus, and potassium applied does not conform to the proper ratio of 1:0.5:1, the ratio of their output being 1:0.23:0.02. Furthermore, since more nitrogenous fertilizer is imported than others, the application is now in the ratio of 1:0.25:0.037), the backward types used (as shown by the small proportion of highly effective granular fertilizers and compound fertilizers), and the application for wrong purposes (or wrongly used in making up for the shortage of different soil nutritions, such as phosphorus, potassium, zinc, borax, molybdenum, manganese, copper, and so forth). Therefore, the efficiency of each jin of chemical fertilizer is reduced from 5 jin to 1.33 jin in output. This situation must be improved. After the necessary readjustment and improvement, it can be expected that each jin out of the approximately 47 million tons of chemical fertilizers being applied on grain crops will increase output by 0.25 and 0.5 jin. Furthermore, if 7.3 million and 14.6 million tons of the newly added chemical fertilizers can be used on grain production, and mostly in the medium- and low-output areas, each jin of chemical fertilizer can raise the output by 2.5 jin, and in 1990 and 2000, the grain output will be increased by 60 billion and 120 billion jin.

c. Increased Use of Fine Strains and Readjustment of Farming System: The cultivation and popularization of fine strains may mean a comprehensive utilization of resistant qualities, water and fertilizers in raising output. This is particularly true of fine strains that are drought resistant and able to endure poor soil, resist insect pests, and other disasters; and efforts must be made to supplement techniques of cultivation. By popularizing fine strains, there is very great potential for increasing output. For example, the per-mu yield of hybrid rice can be more than 100 jin higher, and the "Xushu 18" sweet potato's output can be 500 jin, equivalent to 100 jin of grain, higher. Other fine grain strains have mostly the effect of increasing output by more than 10 percent. If all varieties of major grain crops are updated once throughout the country before 1990 and 2000, grain output, calculated at an average increase rate of 7 percent, will be increased by 40 billion and 50 billion jin, respectively.

Readjustment of the farming system, if cautiously and efficiently handled, can certainly increase output and income. According to an investigative report on two areas in Jiangsu, one set of data proved that the per-mu output of the two-crop rice and wheat system is nearly 500 jin higher than that of a three-crop double-season rice system; while another set of data showed that adoption of the three-crop double-season system increased the per-mu grain output by more than 300 jin and the per-capita income by 99 yuan, compared with 1969. Again, the adjustment of area structures for different varieties which ripen in different seasons, can also markedly increase output as well as income. According to a study of the Lianyuan area of Hunan, if the original ratio of 1:3:6 for early, middle, and late rice in the 2 million mu of farmland is revised into 1:5:4, the cereal output in this area each year would be increased 16 million jin along with an increase of 2.72 million yuan in net income. We estimate that if the farming system can be rationally adjusted (with the double-cropping index increased or decreased) in 10 percent and 20 percent of the sown areas in the country in 1990 and 2000, respectively, then, according to the calculation that each mu will yield 50 or more additional jin, grain output will be increased 8.5 and 17 billion jin, respectively.

According to statistics on the actual effects of the three measures just mentioned, the net increase in grain output in 1990 and 2000 will be 159 and 284 billion jin, respectively. In other words, total grain output will increase from 641.1 billion jin in 1980 to 800 billion and 925 billion jin; soybean output will increase from 15.8 to 28 and 51.6 billion jin; per-unit grain output (for 1.7 billion mu) will increase from 336 to 470 and 544 jin; and per capita output will increase from 652 to 720 and 770 jin. The result of the estimate shows that in the first and second 10 years, total grain output will increase 24.8 and 15.6 percent, with an average progressive increase rate of 2.2 percent (equivalent to 15.9 billion jin) and 1.5 percent (equivalent to 12.5 billion jin); per capita output will increase 10.4 and 6.9 percent, with an average progressive increase rate of 1 percent (equivalent to 6.8 jin) and 0.7 percent (equivalent to 5 jin) a year. In the entire 20 years, total output will increase 44.3 percent with an average progressive increase rate of 1.9 percent (equivalent to 14.2 billion jin) a year; and the per capita output increase will be 18.1 percent with an average progressive increase of 1 percent (equivalent to 5.9 jin) a year. These figures, compared with those of the past, cannot be high. The estimated margin of increase for soybean may be a little overoptimistic. However, if the above measures are taken, this increase can be accomplished.

2. Output of Meat (Including Edible Animal Oil), Milk, Eggs

These are animal husbandry and sideline products, and their output is determined by the amount of fodder and the level of management. Different feeds are required for different animals and fowls. The feeds for pigs and domestic fowl come mainly from grain, while those for cows, sheep, and rabbits come mainly from forage grass and tree leaves. The level of management can affect both the result of the feeds and the slaughter rate. In China, the supply of feeds and the improvement of management will have to take some time, since we can neither remain stationery nor be overhasty in trying to advance. As long as the proper measures are taken, the output of meat, milk, and eggs will increase rapidly. According to our estimate, the following changes in the level of development may take place in the next 10 and 20 years.

If the grain output as mentioned earlier can materialize, then in 1990 and 2000, we can appropriate 200 and 285 billion jin of grain (equivalent to 25 percent and 31 percent of the total grain output of the current years) for feeding pigs, fowl, and milk cows. If 151 and 188 billion jin out of these these amounts are used as pig feed, then at a feed-meat ratio of 4:1, and at slaughter rates of 68 and 73 percent, pork output will be 25.6 and 34.3 billion jin, respectively. If 41 and 77.5 billion jin out of these amounts are are used to feed domestic fowl, then at the feed-egg rate of 3:1 and 2.5:1, egg output will be 13.7 and 31 billion jin, respectively. If 8 and 19.5 billion jin of the grain is used to feed milk cows, then at the feed-milk ratio of 1:1.5 and 1:1.8, milk output will be 12 and 35 billion jin, respectively.

At the same time, planting trees and grass is indispensable as a source of feeds for raising herbivorous animals and increasing meat and milk output. According to the future trend of development, if the area of successful afforestation with manual and aerial seeding can be increased by an average of 70 million mu each year, and allowing 5 years for the trees to grow, then in 1990 and 2000, China's forest cover will reach 15 and 20 percent. If 20 percent of the newly added forest is firewood forest which will produce the desired result in 3 years, then in 1990 and 2000, the area of new firewood forests may reach 100 and 230 million mu, and each mu will yield an annual firewood output of at least 1,000 jin, or a total of 100 and 230 billion jin. Tree leaves, if not used for feeding animals, can be a substitute for straw [used for fuel], and the straw can be used to raise herbivorous animals. If the efficiency of straw in producing meat is 0.1 percent, then 90 and 170 billion jin of straw can produce 9 and 17 billion jin of meat. If the efficiency of straw in producing milk is 0.15 percent, then the remaining 10 and 60 billion jin of straw can produce 1.5 and 9 billion jin of milk.

In the herding and farming areas, some artificial pastures have been built with aerial seeding or manual planting to produce good forage grass of the leguminous group. If some 8 million mu of the seedlings can be preserved each year, then in the second or third year these pastures will be suitable for grazing to a certain extent, or ready for grass-cutting within enclosures. In 1990 and 2000, the area of these artificial pastures will be increased from 32 million mu in 1980 to 120 and 200 million mu, and the forage grass, in terms of (dried straw), will reach 60 and 100 billion jin. We can then produce 2.7 billion and 3.8 billion jin of beef or mutton and 5 billion and 9.3 billion jin of cow or goat milk. In addition, there will still be more than 3 billion mu of useful natural pastures which, through such preservative measures as rotational herding and herding according to the availability of grass, can also help raise the per-mu meat output to half jin or 8 liang, making a total beef or mutton output of 1.5 billion and 2.3 billion jin.

All these are only rough estimates. The recommended measures also call for efforts in various quarters for the processing, storage, transportation, and scientific management of fodder in addition to the selection and cultivation of fine strains and animal raising by millions upon millions of households. According to the totals of the above items alone, the meat (including edible animal oil) output in 1990 and 2000 will be 38.8 and 57.4 billion jin, an increase of 43.7 and 112.6 percent over 1980. The average progressive increase rate in each of the first and the second 10 years will be 3.7 (equivalent to 1.18 billion jin) and 4 percent (equivalent to 1.86 billion jin), and the average progressive annual increase in 20 years will be 3.8 percent (equivalent to 1.52 billion jin). Milk output will be 18.5 and 53.3 billion jin, an increase of 577 and 1,852 percent. The first and the second 10 years' average annual progressive increase rate will be 21.1 (equivalent to 1.58 billion jin) and 11.2 percent (equivalent to 3.48 billion jin), and the average progressive annual rate of increase will be 16 percent (equivalent to 2.53 billion jin). The output of eggs will be 13.7 and 31 billion jin, an increase of 163 and 496 percent. The average progressive annual rates of increase for the first and the second 10 years will be 10.2 (equivalent to 850 million jin) and 8.5 percent (equivalent to 1.73 billion jin), and the average progressive increase in each of the 20 years will be 9.3 percent (equivalent to 1.29 billion jin). The per capita output, the rate of increase, and the numerical data on animal oil separated from meat output, are shown in

Table 3. Great effort will be required to achieve these high speeds of growth.

3. Output of Edible Plant Oil, Dried and Fresh Fruits

a. Edible plant oil originates from herbaceous and woody oil plants. In the former group are peanut, rapeseed, sunflower, sesame, and soybean for oil extraction. If 20 percent of the soybean estimated earlier is used for oil extraction, in 1990 and 2000 there will be 5.6 and 10.3 billion jin of soybean, which, with the new techniques of "extraction by dissolving under low temperature and constant pressure" or "continuous soaking" may yield more than 16 percent of oil, or 900 million and 1.65 billion jin of soybean oil. If the present sown acreage (about 120 million mu) can be maintained and measures similar to those used for increasing grain output are used, then in 1990 and 2000, the per-mu output can be 25 and 50 percent higher than in 1980. (For example, Shaanxi Province has popularized a fine strain of rapeseed that is suitable for local conditions and its total rapeseed output in 1981 was 50 percent higher than in 1980.) In addition, popularization of some other new extraction techniques may further raise oil output by 3 percent, and increase it to 5.7 and 6.9 billion jin. Furthermore, 150 million jin of oil was produced from rice bran and maize plumule, and output may be increased to 220 and 300 million jin in 1990 and 2000.

Among the woody plants which produce oil are mainly tea oil and olive oil. The acreage and number of these plants are now small and per-unit output is low. Though the potential is good, it will take a long time to raise the proportion of woody plant oil in total edible oil output. Therefore, efforts for its development should be started right now. For example, there are now in the country about 50 million mu of tea oil trees. If we can increase the acreage by 2.5 mu each year and the trees can survive, total acreage will be 75 and 100 million mu in 1990 and 2000. Based on an average per-mu output of 30 and 50 jin from a tree aged 5 or more years, there will be a tea-oil output of 1.87 and 4.37 billion jin in 1990 and 2000. In 1981, there were more than 20 million olive trees, and most of them were planted after 1977. If hereafter 4 million more trees are planted every year, there will be 56 and 96 million of them in 1990 and 2000, and if each of them after 3 or more years can produce an average of 15 and 21.5 jin of oil, olive oil output will be 660 million and 1.8 billion jin.

According to the grand total of these items, the output of edible oil in 1990 and 2000 will be 9.3 (including 27 percent of woody plant oil) and 15 billion jin (including 41 percent of woody plant oil), an increase of 68.2 and 171 percent over 1980. The average annual increase rate in the first and the second 10 years will be 5.3 (equivalent to 380 million jin) and 4.9 percent (equivalent to 570 million jin), and 5.1 percent (equivalent to 470 million jin) in 20 years. With the addition of cottonseed oil and other edible woody plant oil, the output will be further increased.

b. Dried and fresh fruits including foodstuffs from woody plants (such as walnut and chestnut) and other fruits. Their present acreage is small (some

26.7 million mu, only 1.5 percent of the total forest area in the country) and their per-unit output is low (an average per-mu output of 508 jin). In our future afforestation program, we should quickly expand the area of orchards and make full use of empty spaces in front of and behind houses for this purpose. If we can increase the area by about 2 million mu each year, then in 1990 and 2000, it will be expanded to 45 and 65 million mu. Through the choice of fine strains and improved management, it will be possible for the trees to bear fruit in 5 years or more, with an average increase in per-mu output of 25 and 40 percent in the first and the second 10 years, or a per-mu output of 635 jin and 890 jin, and total output will be 22 and 49 billion jin, an increase of 367.6 and 555.4 percent over 1980. The average annual increase rate will be 4.9 (equivalent to 840 million jin) and 8.3 percent (equivalent to 2.7 million jin) in the first and the second 10 years, and 6.6 percent (equivalent to 1.77 billion jin) in 20 years.

4. Output of Sugar, Vegetables, Melons

a. The output of sugar is determined by the output of sugar plants (such as sugar cane and beetroot). In the future, there will also be a fairly high proportion of amyloid sugar and maltose produced from sweet potato and other grain crops. At present, China's per-unit sugar output is fairly low. Since the sown acreage can be increased by only a small margin, the only way to meet the demand is by increasing the per-unit output. For example, in 1980, the national average per-mu output was 6,341 jin (against the world average of 7,472 jin). The output is very uneven in different areas--some as high as 20,000 jin (from the 111-mu high-yield area in Make Production Brigade of Yuwotou Commune, Panyu County, Guangdong), and others as low as 2,000 to 3,000 jin, although the potential is good for an increase. If the measures proposed by the scientific and technical personnel of the departments concerned (such as the readjustment of distribution, concentrated planting of selected strains, cultivation, and popularization of fine strains that have high sugar content and are suitable for local conditions, the establishment of rational systems of rotational planting and interplanting, fertilizer application, irrigation, and the use and preservation of land, and adoption of comprehensive plant protection measures), are adopted, the average national per-mu output may be raised every year and may reach 7,500 and 9,000 jin in 1990 and 2000. Provided the sown acreage can be stabilized at about 7 million mu, the output of sugar cane may reach 52.5 and 63 billion jin, with a sugar output of 6.3 and 7.5 billion jin.

The low per-mu output of beetroot is even more striking. The national average of 1,899 jin in 1980, though 49 percent higher than in the previous year, is much below the world average of 4,028 jin in 1979. The per-unit output in different provinces and regions also varies very much. That of Heilongjiang, for example, is only 1,732 jin, while that of Jilin was 2,569 jin. If similar measures are taken on beetroot as in sugar cane, its per-unit and total output may be expected to increase by a wide margin. As shown in the trend of increase in the past several years, if the average national per-unit output in 1990 and 2000 is raised to 3,000 and 4,500 jin and the sown area can be adjusted to about 7.5 million mu, then the total beetroot output may reach 22.55 and 33.8 billion jin, and 2.9 and 4.4 billion jin of beetroot sugar may be produced.

Furthermore, about 100 billion jin of potatoes are dehydrated in China each year, and 30 percent of them are kept in stock. If 15 and 30 percent of the stock (namely, 4.5 and 9 billion jin of dehydrated potatoes) can be used to produce sugar (for example, the Bengbu Glucose Plant of Anhui has used the starch from dehydrated potatoes to produce sugar of a unique taste), and each jin can be made into 0.4 jin of sugar, then the output of amyloid sugar will be 1.8 and 3.6 billion jin. In 1990 and 2000, the total output of sugar from these sources will reach 11 and 15.5 billion jin, 114 and 201.5 percent higher than in 1980. The average annual rates of increase will be 7.9 (equivalent to 586 million jin) and 3.5 percent (equivalent to 450 million jin) in the first and the second 10 years, and 5.7 percent (equivalent to 520 million jin) in all these 20 years.

b. The output of vegetables and melons will be much higher if some strong measures are taken in dealing with the local supply problem (in the same way as taken in Shanghai, Guangzhou, Xuzhou, Shenyang, and Quanzhou). These measures are generally guaranteeing a suitable area for planting vegetables (by prohibiting any encroachment on this area and opening new plots in both the nearby and distant suburbs so that at the rate of 0.1 mu per urban resident, the total area in the country can be stabilized at more than 50 million mu); improving conditions of production (such as by enlarging the protected area through mulching and warmth-preservation sheds, improving irrigation facilities, increasing the application of fertilizers, and using suitable farm machines and tools); exchanging advanced techniques and experiences in vegetable cultivation (by organizing the cooperation of many cities in increasing output, in the comprehensive prevention and combat against natural disasters and insect pests, in cultivating and popularizing fine strains, eliminating pesticide pollution, water conservation in irrigation, developing edible fungi and adopting advanced techniques of storage, transportation, pickling, processing, and preserving the freshness of vegetables); allotting sufficient manpower, signing contracts for a balanced market supply and for the production, supply, and marketing of vegetables; adjusting surpluses and shortages on a national scale, revising prices, and granting reasonable subsidies and loans. By this means, the output of vegetables and melons in 1990 and 2000 may reach 250 and 320 billion jin, 38.9 and 77.8 percent more than in 1980 with an average annual increase of 3.4 percent (equivalent to 7 billion jin) and 2.5 percent (equivalent to 7 billion jin) in the first and the second 10 years, and 2.9 percent (equivalent to 7 billion jin) in the entire 20 years [all figures as published].

5. Output of Aquatic Products

The output of aquatic products is determined by the catch and the aquaculture in both sea and fresh water. From 1980 through 1982, the total aquatic product output was 9, 9.2, and 10.3 billion jin each year, a progressive increase of 4.4, 2.4, and 11.9 percent, respectively. Thus the downward trend in the late 1970's has been gradually reversed. At present, the increase in total output is mainly attributed to freshwater aquaculture and ocean fishing, and marine products account for more than 65 percent of the total output. Looking forward to the future, we can see very good potential in our aquatic production, particularly with regard to the expansion of breeding areas and raising per-unit output.

a. Ocean Fishing: While strengthening management to protect resources and control catches, we can at the same time take such measures as releasing fish and shrimp for artificial aquacultivation in Bohai and other coastal seas and bays, and expanding the scope of our fishing in the outer seas and distant oceans. Then the estimated catch in 1990 and 2000 may be increased from 6.19 billion jin in 1982 to 7 and 9 billion jin.

b. Marine Aquaculture: There are 20 to 30 million mu of shallow waters and beaches available for marine aquaculture, and only about 2 million mu is being used. In the future, while solving the problems of processing, transporting, and marketing mollusks and algae, we should also pay special attention to the breeding of fish and shrimp. (Now that the research in artificial breeding of prawns is a success, we no longer have to rely on the supply of natural shrimp larvae.) If in 1990 and 2000 the area of marine aquaculture can be doubled or trebled, output will increase from 990 million jin in 1982 to 1.8 and 3 billion jin.

c. Freshwater aquaculture: There are 70 to 80 million mu of water surfaces in inland China suitable for artificial breeding, and about 45 million mu has been used for this purpose. In 1981, the area of water surfaces used for pisciculture had a per-mu output of only 47 jin. In the future, if we can expand the area of breeding, raise per-unit output (of both extensive and intensive aquaculture), and particularly popularize effective techniques of breeding with high and steady output, fine quality, and low consumption; follow the examples of Fuzhou, Wuxi and Jiamusi where large ponds give a per-mu output of 500 to 700 jin, or the examples of Hunan and Zhejiang where small water surfaces are used for intensive aquaculture; take advantage of cross-breeding technology for new breeds as a means of raising output; and learn from the experiences of using net cages, paddy fields, terrestrial heat, residual heat from factories, and various kinds of feeds in raising fish, and from Guangdong's "fishponds in mulberry and sugar cane bases" which is well known in the world as the "paragon of energy conservation, full utilization of local resources, recycling wastes, and preserving good ecological conditions," as well as Zhejiang's mulberry-fowl-fish combination and Hunan's vegetable-pig-fish combination, then we can expect that in 1990 and 2000, the average per-mu output from fishponds, weirs, and commercial fish bases of about 20 million mu will be raised from the present 100 or more jin to 300 to 400 jin, with a fish output of 6 and 8 billion jin; and the average per-mu output from nearly 60 million mu of reservoirs and lakes will be increased to 40 and 70 jin with a fish output of 2.4 and 4.2 billion jin. If the paddy fields suitable for fish-raising in the south can be increased to 60 and 100 million mu, then, based on a per-mu output of 50 to 60 jin, as already achieved by Chixi Commune of Yongtai County, Fujian, the fish output from this source will be 3 and 6 billion jin. In 1990 and 2000, total freshwater fish output may reach 11.4 and 18.2 billion jin.

d. Freshwater Fishing: At present, there are more than 200 million mu of freshwater surface not yet used for breeding. If we will take the necessary measures to protect and increase the resources, then the catch can be slightly higher than in 1982--more than 800 million jin instead of some 700 million jin.

Summing up aquatic production from these four sources, we can see that total output in 1990 and 2000 will be more than 21 and 31 billion jin, including 12.2 billion jin, 58 percent, and 19 billion jin, 61 percent, of freshwater fish. Then the total national output of aquatic products will be 133.6 and 244.8 percent higher than in 1980; the average annual progressive rate will be 8.9 (equivalent to 1.2 billion jin) and 4 percent (equivalent to 1 billion jin) in the first and the second 10 years, and 6.4 percent (equivalent to 1.1 billion jin) in the entire 20 years.

D. State of National Balance of Food Supply and Demand

The state of China's supply and demand in 1990 and 2000 concerning various major foodstuffs is now clear, according to the estimated amounts required and produced. From the state of balance of supply and demand shown in Table 4, we can see the following features:

1. Balance of Supply and Demand Concerning Various Major Foodstuffs

This issue can be summarized in two points: First, the supply of and demand for some foodstuffs, such as grain and edible oil, will be basically balanced in 1990, although this balance in 1980 had to be maintained by relying on imports to a certain extent. Little or no net imports will be required thereafter. In 2000, supply will exceed demand, and there will be net exports in small amounts. Second, in 1980, we had net exports of some other foodstuffs (such as vegetables, melons, dried and fresh fruits, meat, milk, eggs, and aquatic products). In 1990 and 2000, supply will exceed demand by an even wider margin, and net exports will be further increased.

2. Overall Balance of Foodstuff Supply and Demand

In 1980, because of the shortage of supply for the domestic demand, we had to rely on a net import of 23 billion jin of foodstuffs to maintain the balance. This situation will be gradually changed. In 1990, China's output will be slightly more than enough for domestic consumption, and there will be net exports of about 6 billion jin. Supply will then exceed demand. In 2000, there will be further improvement to reverse the situation in 1980. More than 21 billion jin will be exported and the supply will further exceed the demand.

On the whole, it can be predicted that the state of food supply and demand around 1990 will continue to improve with marked effects on the people's diet composition and nutrition level. There will be more than self-sufficiency, and China's contribution to the balance of food supply and demand in the world will be increasingly obvious.

Table 4. Balance of Supply and Demand, Major Foodstuffs

Unit: 100 million jin

	1980 corrected calculations			1990 forecast			2000 forecast		
	Domestic demand	Output	Net import/ export for 1980 corrected calculations, export only for 1990 and 2000 forecasts	Domestic demand	Output	Net import/ export for 1980 corrected calculations, export only for 1990 and 2000 forecasts	Domestic demand	Output	Net import/ export for 1980 corrected calculations, export only for 1990 and 2000 forecasts
Total	9,123	8,892	Import 230	11,782	11,843	Export 61	14,761	14,972	Export 211
Foodstuffs	6,647	6,411	" 236	8,000	8,000	--	9,200	9,250	" 50
Of which: soybean	155.7	158	Export 2.3	278	280	Export 2	514	516	" 2
Edible oils	86.5	84.3	Import 2.2	138	138	--	211	214	" 3
Of which:									
plant oil	57.5	55.3	" 2.2	93	93	--	149	150	" 1
animal oil	29	29	--	45	45	--	62	64	" 2
Sugar	64	51.4	Import 12.6	110	110	--	150	155	" 5
Vegetables and melons	1,794	1,800	Export 2	2,470	2,500	Export 30	3,120	3,200	" 80
Dried and fresh fruit	129.3	135.8	" 6.5	213	220	" 7	470	490	" 20
Meat	234	241	" 7	336	343	" 7	495	510	" 15
Milk	26.3	27.3	" 1	175	185	" 10	519	533	" 14
Eggs	50.5	52	" 1.5	135	137	" 2	298	310	" 12
Aquatic products	87.8	89.9	" 2.1	205	210	" 5	298	310	" 12

III. Some Views on Resolving China's Food Supply and Demand Problem

The given estimates have shown that despite the many difficulties and weaknesses in China's state of food supply and demand, the future situation will continue to improve and we can achieve unprecedented success so long as we are soberly aware of these difficulties and weaknesses and adopt the proper policies in dealing with them.

The first decisive factor in the materialization of this trend of development is already available. Since the 3d Plenum of the 11th CPC Central Committee, the series of agricultural policies implemented by the State Council are consistent with the national conditions and supported by the people. The broad masses are now full of enthusiasm about developing production intensively and extensively, and marked success has been achieved in the agricultural economy. These policies will be perfected to produce even more profound and far-reaching positive effects. The second decisive factor lies in the hope that more problems of strategic significance can be solved satisfactorily. The main problems concern: 1) controlling population growth and alleviating the pressure on food supply from demand; 2) an early inventory of agricultural resources and the formulation and implementation of plans for agricultural zoning; 3) improvement of the ecological environment and the formation of a benign cycle in the ecological system; 4) rational utilization of resources, opening more sources of foodstuffs and animal feeds; 5) development of rural education as an impetus to scientific and technological pursuits in agriculture; and 6) development of food-processing industry to promote the production of food to be sold as commodities.

In addition, in the course of resolving the contradiction between food supply and demand, the two following aspects, which have not yet attracted widespread attention, should not be overlooked.

A. Giving New Meaning to the Food Concept

Modern science has shown that human beings owe their existence to six major nutrients from food and to oxygen in the air. Therefore, to equate food with grain (the five cereals and coarse grains) is an outdated traditional concept. According to the scientific concept, food is the substance to supply the nutrients necessary for human beings. This gives a new meaning to the food concept.

Based on this scientific food concept, we can see that all living things and even some nonliving things in the world can either directly or indirectly serve as a source of human nourishment, thus greatly increasing the sources of food supply. Comrade Chang Jingwei [1603 2519 5588] pointed out: "It is unfortunate that because of the bondage from people's traditional food concept, formed in thousands of years, there are even in this civilized world, millions upon millions of people suffering from hunger or even dying of malnutrition."

China has also suffered enormously from this traditional concept. Past experiences have proved that striving for grain production alone and neglecting the coordinated development of agriculture, forestry, animal husbandry, sideline production, fishery, industry, commerce, and communications has not only made it difficult to solve the problem of feeding the Chinese people, but has also ruined China's agricultural resources and confronted it with many problems from the disruption of the ecological balance. At present, in exploring the way to solve the problem of food for the Chinese people, the controversy between the idea that "if grain output cannot reach the required amount, nothing else can be considered" and the idea that "if all industries can be developed in good coordination, the sources of food will be broadened" and the controversy over priorities for grain, fishery, animal husbandry, sideline production, forestry, or fruit cultivation, are essentially the controversy between the traditional and the scientific food concept. The scientific concept must prevail, and the element of nutrition must be considered in both production and consumption before the strategy of agricultural development may proceed from food quality, consumers' needs, economic results and ecological benefits, and then bring about rational and correct understanding and planning. Therefore, giving a new meaning to the food concept is a very urgent and important task.

B. Opening New Avenues for Food Production

If the concept of food as a source of nutrition is used to guide food production, it will be necessary for us to note the national resources in order to open new avenues for increased production. Following are examples:

1. Tapping Hidden Resources Everywhere for Native and Special Products, Striving To Transform Their Production Into an Economic Industry, Scientific in Form

Inspired by the yangtao (actinidia chenensis) industry of a scientific form in New Zealand, some Chinese experts have begun to show interest in the native and special products all over China. For example, the thorny [acanthocarpous] pears of Guizhou (which contain 5 to 10 times the amount of vitamin C in yangtao--called the "king of fruits"--and which can be directly used for food or processed into liquor or some other beverage); the cassava of Guangxi (containing mainly starch which can be made directly into sugar, acid, and alcohol, and leaving residues which can be used to produce compound protein feeds, or be further processed into hundreds of special products); the litchi and longan of Fujian, the soybean of Heilongjiang, the prawns of Shandong, and so forth, are all embarking on the road of scientific and economic industrialization. If every province and city can develop one or more native and special products that have high nutritious value and can be cultivated and propagated to form scientific and economic industries, they will be making a great contribution to the national food industry.

2. Correcting in Time the Phenomenon of Stressing Quantity at the Expense of Quality by Striving To Develop High-Quality, High-Output Varieties of Agricultural Sideline Products

At present, the phenomenon of stressing quantity at the expense of quality is shown by the fact that agricultural sideline products are not evaluated according to the amount of nutrients contained, and that their prices are set with no reference to quality. The prices thus deviate from the law of value. This phenomenon is particularly noticeable in soybean production. People generally agree that in terms of protein and fat content, soybean is by no means inferior to corn. Furthermore, soybean can keep the soil fertile, and its dregs can become high protein animal feeds. Yet, its output has been greatly reduced since the 1950's. It is true that there has been an upswing in recent years, but the rise is too slow, mainly because of irrational procurement prices which make the growing of corn more profitable and the growing of soybean less rewarding. Now, China's soybean output is not only far behind that of the United States and Brazil, but also inadequate for its domestic demand. Therefore, an early readjustment should be made and due measures taken to raise its per-unit output and to enlarge its sown acreage in order to speed up its development. Again, the sugar content of sugar crops has dropped drastically in the past 3 years, and the procurement price still remains unchanged. As a result, sugar output during the extraction season in 1982-1983 was 500,000 tons less than in the previous year, and the loss amounted to 500 million yuan. There are also similar problems in other agricultural sideline products, and these problems must be radically solved. If we can actually set prices and assess the output according to quality, there will be an incentive to scientific research and the production of fine-quality products, and to the popularization of these products with real benefits to both the peasants and the state. For example, the protein content varies very greatly in different varieties of cereals and wheat. If their quality can be improved so that their protein content is increased 2 percent or 1 percent, then, based on the actual output in 1982, a total of 7.8 billion jin of protein can be produced for a daily per capita supply of 21 grams. From this, we can see that developing food varieties of fine quality and high output can be a new way to increase food production.

3. Changing the Practice of Developing Only Timber Forests by Paying Attention to the Development of Firewood Forests and the Cultivation of Oil-Bearing Woody Plants and Fruit Trees

As mentioned earlier in this article, active afforestation and the addition of 70 million mu of forest with mature trees will increase the national forest cover to 20 percent, equivalent to a forest area of 2.88 billion mu, in 2000. If 280 million mu (9.7 percent of the forest area) is used to produce firewood, then the firewood available for cutting in 230 million mu can be used to replace straw which, in turn, can be used as fodder to help produce 17 billion jin of beef and mutton and 9 billion jin of cow milk or goat milk. The output of these two items can be raised by 34.3 percent and 16.9 percent in the same year. If 100 million mu (3.5 percent of the forest area) can be used for planting 96 million olive and tea-oil trees (it will require only 9.6 million mu or 0.3 percent of the forest area, if there are 10 trees per mu), the total oil output from these trees will be 6.17 billion jin, 41 percent of the possible output of edible plant oil in the same year. If 65 million mu (2.3 percent of the forest area) is used to plant fruit trees of various types, the output of fruits will be 49 billion jin. From this, we can see that the total area occupied by firewood forests, oil-bearing woody plants and fruit trees amounts to only 15.8 percent of the total forest area, and their products would amount to one-third of the meat output, one-sixth of the milk output, two-fifths of the edible plant oil output, and nearly all the fruit output of the year throughout the country. This will be a tremendous contribution. Furthermore, the increased use of edible oil from woody plants can also help alleviate the pressure on the farmland used for producing grain for animal feeds and for producing herbaceous oil-bearing plants. Therefore, expansion of the forests of these three types is also a new way, which cannot be overlooked, in the proper solution of China's food problem.

4. Active and Rational Use of the Resources of Freshwater Surfaces, Shallow Waters, Beaches, Mountains (Suitable for Herding) and Pastures--The Combined Area of Which Far Exceeds That of Farmland

As analyzed earlier, the potential of food production here is very good. In developing aquaculture, for example, we can make use of 20 million mu of fishponds, weirs, and commercial fishing bases to produce 8 billion jin of fish; 60 million mu of reservoirs and lakes to produce another 4.2 billion jin, and 100 million mu of paddy fields to produce still another 6 billion jin of fish, all in 2000. The fish output from these three sources will total 18.2 billion jin, 58.7 percent of the possible aquatic output in the same year. If we enlarge the area of marine breeding to 6 million mu, we will have an output of marine products, including fish, shrimp, mollusks, and algae, of 3 billion jin, 9.7 percent of the total possible output of aquatic products in 2000. With the aid of aerial seeding and manual planting, we can preserve more than 8 million mu of forage grass each year, and then by the turn of the century, there will be 200 million mu of artificial pastures which, with the addition of the natural pastures, can be used to produce 6.3 billion jin of beef and mutton, and 9.3 billion jin of cow milk or goat milk, 12.4 and 17.4 percent of the possible total output, respectively. All these figures show that these two resources [in aquatic production and animal husbandry], though not yet fully utilized, can be expected to make great contributions. If in the future they are used to better advantage, the greater will be their roles in promoting food production.

5. Full Utilization of the Rich Animal Feed Resources and Vigorous Development of Aquatic Production and Animal Husbandry

In this article, the estimated amount of grain used for animal feeds in 1990 and 2000 will amount to only 25 and 31 percent of the possible grain output in the current years, and these feeds will be supplemented by the straw and potato stems made available by the substitution of grasses and tree leaves. Furthermore, the availability of these feeds also must depend on the use of mixed or compound feeds. The sources of those feeds not yet mentioned here are very extensive. Some of them are familiar to everyone, and their available amounts, according to incomplete statistics are: 50 billion tons of bran, 17.5 billion tons of bean dregs (not including the bean and peanut dregs used for plant food protein), 4 billion jin of leftover materials from aquatic products and the slaughtering industry (which can be made into fish food, bone powder, blood powder, feather powder, and so forth), 10 billion jin of various distillers' grains, 1.2 billion jin of beetroot filaments, 1 billion jin of bagasse and 700 million jin of sunflower base, all making a grand total of 88.4 billion jin, in addition to cocoon powder, Chinese scholartree powder, and so forth. There are also other feeds only recently noticed, such as earthworms, fly maggots and more than 270 types of insects, various types of mollusks and algae, masson pine leaves, medicinal herb residues, fungus brans, acorns (3 to 9 billion jin), monocellular protein (a "highly purified" protein with petroleum as the culture medium), and then the manure of certain fowls and animals. With such abundant feeds, we should say that the expected output of meat, eggs, milk, and fish can be not only fulfilled but also overfulfilled. The important point is that they must be properly used. Some of them can be used in cycles (such as the use of concentrated feeds for chickens, then the use of chicken droppings fermented in sedimentation basins for pig feeds, the use of pig manure to breed earthworms, and the use of earthworms to feed chickens in an endless cycle). Some useful byproducts can also be obtained in the process of mixing different ingredients. (For example, 100 kg of edible fungi and 60 kg of animal feeds can be obtained from 100 kg of cultured materials in the process of preparing fungus bran feeds.)

6. The Production of New Foodstuffs According to the Proportionate Balance ("Short-Line Balance") of Amino Acid in the Protein Structure and the Theory of Mutually Supplementary Nutrients

For example, mixed food (food in which the different ingredients are well proportioned, such as maize flour mixed with bean flour), invigorating food (food with amino acid and the necessary vitamins as additives, such as vitamin bread, calcium biscuits, iodized salt, and so forth), and the nutrition base (the additives with protein from animal and plant products, such as bean, fish and yeast, as the basic ingredients, and with the addition of the required nutrients, to be used for infant food, such as bean relish [dou xiang 6258 7449], egg relish [dan xiang 5751 7449], and some new types of monocellular protein (some animal feeds that may become fit for human consumption after transformation), and synthetic food (such as synthetic beef made of soybean), will find their way into Chinese people's recipes around the end of the century.

On the whole, according to the forecasts in this chapter, the path of advance in China's agriculture in a broad sense, like those of other undertakings may be a tortuous one. However, its future is promising. If the various measures mentioned here can be properly implemented, the future problem of food supply and demand can be solved easily.

Annexed Table 1. Comparison of Increases and Decreases in Output of Various Foodstuffs in China in Three Different Periods

		Years of highest output before liberation		26 years	before 1978			4 years after 1978		
		Year	Amount	1952	1978	Rate of increase percent	Average increase each year percent	1982	Rate of increase percent	Average increase each year percent
Total grain output	100 million jin	1936	3.000	3.278	6.095	85.9	2.4	7.068.5	16.0	3.8
Cereals	"	"	1.147	1.369	2,739	100.0	2.7	3.224.9	17.7	4.2
Wheat	"	"	466	363	1.077	196.7	4.3	1.368.4	27.1	6.2
Tubers	"	"	127	327	635	94.2	2.6	533.6	−19.0	−4.4
Maize	"	"	202	337	1.119	232.0	4.7	1.205.9	7.8	1.9
Gaoliang	"	"	239	222	161	−37.9	−1.2	139.3	−15.8	−3.9
Millet	"	"	212	231	131	−78.3	−2.2	131.6	0.5	0.1
Soybeans	"	"	226	190	151	−25.8	−0.9	180.6	29.6	4.6
Total output of edible oils	10,000 dan	—	—	8.386.3	10.435.8	24.4	0.8	23.634.8	126.5	22.7
Peanuts	"	1933	6.342	4.631.6	4.631.5	2.6	0.1	7.832.9	64.8	13.3
Rapeseed	"	1934	3.814	1.864.1	3,735.8	100.4	2.7	11.312.8	202.8	31.9
Sesame	"	1933	1.982	961	644.8	−49.1	−1.6	684.3	6.1	1.5
Total sugar output	"	—	—	15.189	47,637	213.6	4.5	87.187.8	83.0	16.3
Sugar cane	"	1940	11.303	14,231.6	42,232.8	196.8	4.3	73.704.8	74.7	15.0
Beetroot	"	1939	668	957.1	5.404.6	464.7	6.9	13.423.0	148.4	25.5
Total fruit output	"	1936/37	1.249*	4.888	13,139.4	168.8	3.9	15.424.1	17.4	4.1
Yearend inventory of livestock										
Large animals	10,000 head	1935	7.151	7.645.9	9.389.2	22.8	0.8	10.112.7	7.7	1.9
Pigs	"	1934	7.853	8.976.5	30.128.5	235.6	4.8	30.078.3	−0.2	−0.04
Sheep		1937	6.252	6,177.8	16.993.7	175.1	4.0	18.179.0	7.0	1.7
Total output of pork, beef, mutton	10,000 tons	—	—	338.5	858.3	153.0	3.6	1.351	57.8	12.1
Total output of aquatic products	"	1936	150	166.6	465.3	179.3	4.0	515.6	10.8	2.6

Note: *Sum total of apples and citrus in 1936 and bananas in 1937, the highest output before liberation.

Annexed Table 2. Comparison of Increases and Decreases in Per Capita Output of Various Foodstuffs in China in Three Different Periods

	Per capita output (jin/person)			1978 compared with 1952 (+, -)		Average annual increase or decrease in 26 years before 1978		Increase in 1982 over 1978		Average annual increase in 4 years after 1978	
	1952	1978	1982	Absolute amount (jin)	Percent	Absolute amount (jin)	Percent	Absolute amount (jin)	Percent	Absolute amount (jin)	Percent
Grain (including soybean)	570.0	636.2	699.0	66.2	11.6	2.5	0.4	62.8	9.9	15.7	2.3
Edible oils	14.6	10.9	23.4	−3.7	−25.3	0.14	−0.5	12.5	114.7	3.1	21.0
Sugar	26.4	49.7	86.2	23.3	88.3	0.9	2.5	36.5	73.4	9.1	14.8
Fruit	8.5	13.7	15.3	5.2	61.2	0.2	1.9	1.6	11.7	0.4	2.8
Pork, beef, mutton	11.8	17.9	26.7	6.1	51.7	0.2	1.6	8.8	49.2	2.2	10.5
Aquatic products	5.8	9.7	10.2	3.9	67.2	0.15	2.0	0.5	5.2	0.13	1.3

Note: State of population growth: The national population in 1952, 1978, and 1982 was 574.82 million, 958.09 million, and 1,011,172,000, respectively. Thus, in the 26 years before 1978, the population increased 66.7 percent, at an average annual rate of 2 percent. In the 4 years after 1978, the population increased 5.5 percent at an average annual rate of 1.4 percent.

Annexed Table 3. China's International Ranking in Total Output of Various Major Foodstuffs

Product	Year	China's output	China's rank	Countries ahead of China and their output
Grain*	1980	641 billion jin	2	United States-- 645 billion jin
Peanut		72,007,000 dan	2	India--128 million dan
Rapeseed		47,674,000 dan	2	Canada--48.6 million dan
Sesame		5,171,000 dan	2	India--10.6 million dan
Meat**		24.11 billion jin	3	United States-- 53.28 billion jin Soviet Union-- 30 billion jin
Fresh eggs***		5.2 billion jin	3	United States-- 8.2 billion jin Soviet Union-- 7.58 billion jin
Sugar cane		456,148,000 dan	5	Brazil--2,959,080,000 dan India-- 2,576,000,000 dan Cuba-- 1,360,000,000 dan United States-- 512,280,000 dan
Beetroot		126,107,000 dan	5	Soviet Union-- 1,500,000,000 dan France-- 530,000,000 dan United States-- 422,300,000 dan FRG-- 365,500,000 dan
Pears	1979	28,758,000 dan	1	--
Apples		57,377,000 dan	4	Soviet Union-- 150,000,000 dan United States-- 70,400,000 dan France-- 59,000,000 dan
Citrus fruit		11,093,000 dan	5	Brazil-- 204,000,000 dan United States-- 177,800,000 dan Japan-- 77,400,000 dan Italy-- 40,600,000 dan
Aquatic products	1978	9,306,000,000 jin	3	Japan--21.5 billion jin Soviet Union-- 17.86 billion jin

*China's output includes soybeans.

**Foreign output includes poultry.

***Foreign output refers to chicken eggs.

Annexed Table 4. Comparison of Growth Rates of Several Foodstuffs

Unit: percent

Product	Periods of comparison	China	World average	Other countries	
Grain*	1953-1980	95.6	117.6	Soviet Union	94.8
				United States	104.6
				India	145.8
				Yugoslavia	287.9
Sugar cane		220.5	159.3	India	152.6
				Cuba	69.2
				United States	294.2
				Brazil	310.5
Citrus fruits	1953-1979	161.9	179.9	United States	33.7
				Italy	111.5
				Japan	534.4
				Brazil	709.5
Aquatic products	1953-1978	179.5	210.5	United States	46.3
				Japan	123.0
				India	220.3
				Soviet Union	372.5

*China's output includes soybeans.

Annexed Table 5. Comparison of Per-Unit Output of Various Major Food Crops in 1980

Unit: jin/mu

Product	China's national average	China's province, city or regions with highest per-unit output		World's average	Countries (regions) in the world with highest per-mu output	
Cereals	550	Ningxia	945	355	Spain	813
Wheat	250	Shanghai	554	240	Netherlands	827
Maize	410	Liaoning	615	391	Greece	939
Soybean	146	Shanghai	601	201	Canada	307
Peanut	205	Shandong	300	125	Israel	381
Rapeseed	112	Shanghai	245	119	France	372
Sesame	44	Sichuan	87	42	Guatemala	126
Sugar cane	6,341	Fujian	9,970	7,472	United States	11,261
Beetroot	1,899	Hunan	5,581	4,028	United States	5,869

Annexed Table 6. Comparison of Per Capita Food Output (1980)

Unit: jin/person

Food variety	Grain[1]	Plant oil[2]	Sugar	Meat[3]	Aquatic products[4]	Chicken eggs[6]	Milk	Fruit[5]
China's per capita output	652	5.6	5.2	24.5	9.1	5.3	2.3	13.8
World average per capita output	815	11.7	39	64.5	34	12.3	193.3	107
Per capita output of certain countries	485	8.2	12					
India	485	8.2	12	2.6	7	0.3	30.7	8
United States	2,372	63.2	46	243	32	36	509.0	541
Soviet Union	1,377	11.3	57	113	68	28.5	679.3	99
Australia	2,242	11.3	449	367	18	26	769.5	--
Yugoslavia	1,402	10.0	73	128	5	20	380.0	137

Notes:
1. Refers to cereals in foreign countries.
2. Converted amounts of various types of plant oil.
3. Foreign output includes poultry.
4. In aquatic product output, the world average and the average per capita figures are for 1978.
5. In fruit output, the world average and the average per capita figures are for 1979.
6. In China, the output includes all kinds of eggs.

Annexed Table 7. China's Agricultural Labor Productivity Compared With That of Certain Foreign Countries in 1980

Country	Agricultural labor force (10,000 persons)[1]	Average capability of each agricultural laborer			
		Number of dependents supported[2]	Area of farmland undertaken[3]	Cereal output (jin)	Meat output[4]
China	31,370.0	3.1	4.8	1,704	77
India	16,811.0	4.1	15.1	1,726	8
Japan	661.2	17.7	10.5	3,992	572
United States	217.5	102.1	1,255.5	248,274	16,120
Soviet Union	2,201.7	12.1	151.5	16,608	1,136
Australia	35.7	41.7	1,804.5	91,838	13,428

Notes:
1. Estimated number in foreign countries.
2. Total population and agricultural labor force compared.
3. Farmland area in China.
4. Includes pork, beef, and mutton.

Annexed Table 8. China's Per Capita Annual Food Consumption Compared With That of Certain Foreign Countries (Average of 1975-1977)

Unit: jin

Country	Grain 1	Vegetables	Fruit	Nuts	Sugar	Oil and fat 2	Meat 3	Eggs 4	Milk 5	Aquatic products	Total				
											Amount	Plant products		Animal products	
												Amount	%	Amount	%
China 6	413	183	12.5	0.2	7.6	* 3 4.6	22.2	4.5	2.5	8	661.7	621.3	93.9	40.4	6.1
India	289	103	45	10	34	** 11	3	0.2	60	5	560.2	492	87.8	68.2	12.2
Egypt	409	234	160	3	97	21	26	3	30	7	990	913.5	92.3	76.5	7.7
Japan 7	280	215	139	61	51	24	61	32	67	88	998	748	74.9	250	25.1
.	286	230	80.8		49.8	25.9	42.6	29.8	118.6	73.2	936.4	661.6	70.7	274.8	29.3
Canada	176	169	167	9	96	60	204	26	270	20	1177	632	53.7	545	46.3
United States	166	202	217	9	112	54	228	32	304	16	1330	723	54.4	607	45.6
France	196	204	141	6	83	58	188	26	219	23	1163	659	57.2	494	42.8
Soviet Union	338	177	82	5	83	82	109	24	308	48	1206	701	58.1	505	41.9
Australia	128	142	164	4	180	80	247	25	268	17	1115	543	48.7	572	51.3

Notes:
1. Processed grain.
2. Unless otherwise noted, all figures include both animal and plant oil in equal portions.
3. Refers to pork, beef, and mutton in China.
4. Refers to chicken eggs in foreign countries.
5. Refers to cow milk in foreign countries.
6. 1980 figures.
7. 1978 figures for Japan.

* An [illegible]l
**Plant [illegible]

Annexed Table 9. Calories, Protein, and Fat Contained in Daily Diet Per Person in the World and Certain Countries (1977 figures)

	Calories					Protein					Fat				
	Total (cal)	Plant products		Animal products		Total (gm)	Plant products		Animal products		Total (gm)	Plant products		Animal products	
		cal	(%)	cal	(%)		gm	(%)	gm	(%)		gm	(%)	gm	(%)
World average	2.571	2.136	83.1	435	16.9	68.8	44.9	65.3	23.9	34.7	62.2	28.7	46.1	33.5	53.9
China*	2.450	2.302	94.0	148	6.0	63.9	57.1	89.4	6.8	10.6	28.3	15.1	53.4	13.2	46.6
India	1.919	1.827	95.2	92	4.8	47.3	42.5	89.9	4.8	10.1	30.0	23.6	78.7	6.4	21.3
Egypt	2.787	2.608	93.6	179	6.4	78.5	65.3	85.4	11.2	14.6	50.1	36.5	72.9	13.6	27.1
Japan	2.946	2.399	81.4	547	18.6	88.0	45.6	51.8	42.4	48.2	74.1	37.7	50.9	36.4	49.1
**	2.500	1.946	77.8	554	22.2	80.5	41.9	52.0	38.6	48.0	66.3	26.1	39.4	40.2	60.6
Canada	3.368	1.939	57.6	1.429	42.4	101.3	35.1	34.6	66.2	65.4	150.3	33.7	22.4	116.6	77.6
United States	3,578	2.266	63.3	1.312	36.7	106.4	33.1	31.1	73.3	68.9	165.9	66.6	40.1	99.3	59.9
France	3,434	2.171	63.2	1.263	36.8	104.3	37.6	36.0	66.7	64.0	144.6	41.7	28.8	102.9	71.2
Soviet Union	3.460	2.510	72.5	950	27.5	103.4	52.0	50.3	51.4	49.7	110.5	29.1	28.7	72.4	71.3
Australia	3.415	2.085	61.1	1.330	38.9	107.8	34.1	31.6	73.7	68.4	130.2	29.7	22.8	100.5	77.2

Note: *Figures are from corrected computations for China in 1980.
**Figures for 1978 as announced by Japan's Ministry of Agriculture, Forestry, and Fishery.

Annexed Table 10. China's Safety Rate for Several Major Foodstuffs*

	1957	1962	1965	1970	1975	1977	1980
Grain**	80.1	52.3	66.7	100.2	83.4	65.5	45.0
Edible plant oil**	60.7	70.2	80.5	71.1	64.7	64.9	80.3
Pig***	8.7	35.8	15.7	13.8	15.7	18.3	8.5
Fresh eggs***	8.6	12.0	9.1	14.6	12.8	10.9	3.1
Sugar***	31.4	102.2	116.3	41.6	34.2	62.3	36.8

Notes: * Yearend stock compared with annual consumption amount.
** Yearend stock in year of production compared with amount of domestic consumption in same year.
*** Yearend stock in calendar year compared with domestic net sales.

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Chapter 8. Present Situation in China's Communications and Transportation and Forecast for 2000, by Wang Yuqing [3769 0151 0615]

Summary: This article will briefly introduce China's great achievements in communications in the past 30 years, analyze and describe major problems now existing in communications and transportation, and then, based upon historical trends of development, forecast the future prospects of several individual modes of transportation. Finally, several suggestions and ideas are submitted for accelerating changes in China's communications and transportation industry. [End of summary]

I. China's Achievements in Communications and Transportation

China has made great achievements in communications and transportation since the founding of the People's Republic. The land, water, and air transportation routes, including those of railways, highways, waterways, civil aviation, and pipelines, now total 1.38 million km, a 6.3-fold increase over the 187,700 km in the early post-liberation period. The operational mileage of railways is now 51,900 km, ranking fifth in the world. The railways left before the liberation were very old and in disrepair. After many years of transformation, they have become important trunklines. The new railways built after the founding of the People's Republic have markedly changed the situation of railways being concentrated along the coast and in the northeastern region. The operational mileage of highways has reached 910,000 km, ranking sixth in the world. The quality and technical structures of highways have markedly improved, and those with high-grade surface have been increased from some 300 km in the early post-liberation period to 151,000 km, an increase of more than 500 times. The operational mileage of inland rivers has also been increased to 108,000 km, an increase of 46 percent over 1949. The transportation fleet now consists of 1,179 vessels totaling 8,674,000 tons, ranking 11th in the world. In harbor construction, it has not only repaired and transformed the old ones, but also built new ones with deepwater berths. Civil aviation has grown up almost from scratch. There are now more than 400 planes of various models, and about 200 new air routes, totaling 300,000 km, and including 21 international routes to 22 cities in 18 countries. There are 89 domestic airports in the principal cities and some frontier towns. Pipeline transportation has developed from scratch, and the pipelines transporting crude oil, petroleum products, and gas total 9,900 km. A pipeline network has been initially formed in the northeastern region, and more than 80 percent of the crude oil produced in Daqing Oilfield is being transported through these pipelines.

Along with the increase in the length of transportation routes by several times, transportation equipment has also been improved and the volume of passenger and freight traffic continues to multiply. In 1981, the total freight traffic by various modes of transport was 1,161,600,000,000 ton/km, and the passenger traffic was 250 billion person/km, an increase of 44.5- and 15-fold, respectively, over the volume in the period soon after the founding of the People's Republic.

II. Existing Problems

Despite the great progress made in China's communications and transportation in the past 30 and more years, there are still some problems and shortcomings. They are mainly as follows:

A. Low Density of Transportation Network

China has a large territory with a huge population. In proportion to its territory and population, the density of its transportation network is not only lower than in the developed countries, but also below that of some developing countries. At present, there is a total mileage of more than 30 million km in the modern transportation networks of the world, while China has only 1.38 million km of transportation routes, only about 4.5 percent of the world's mileage, even though its population accounts for 22 percent of the world population. In the world, there is an average of 22 km of transportation routes for every 100 square km whereas in China, there is only an average of 14.3 km, 7.7 km below the world average. In the 107 years since its first railway was built in 1876, China has built 51,900 km of railway. China's present railway mileage is similar to that of the United States in the 1860's and that of tsarist Russia at the beginning of the present century. Although the mileage of China's highways has increased rapidly, there are still two counties (Derong and Motuo), 5,000 communes (townships), and 200,000 production brigades which are inaccessible by highway. Compared with foreign countries, China's density of railways and highways is still very far behind. (See Table 1 and Table 2)

Table 1. China's Railway Density Compared With Several Other Countries

	National territory (10,000 square km)	Population (10,000 persons)	Railway mileage (10,000 km)	Railway density	
				km/100 square km	km/10,000 persons
China	960	101,500	5.19	0.54	0.51
India	297.47	65,694	6.08	2.04	0.92
Soviet Union	2,240	26,554	14.11	0.63	5.31
Canada	992.23	2,394	6.76	0.68	28.23
United States	936.31	22,764	30.66	3.27	13.46

Table 2. China's Operational Highway Mileage and Density Compared With Several Other Countries

	National territory (10,000 square km)	Population (10,000 persons)	Highway operational mileage (10,000 km)	Railway density	
				km/100 square km	km/10,000 persons
China	960	101,500	91	9.47	8.96
India	297.47	65,694	88.4	29.7	13.4
Soviet Union	2,240	26,554	142.7	6.4	63.7
Brazil	851.2	10,918	148.9	17.49	136.3
Japan	37.7	11,678	110.6	293.36	94.7
United States	936.31	22,764	625.2	66.8	274.64

B. Irrational Transport Structure

The transportation system consists of five different modes of transportation. However, since the division of work among them is irrational, comprehensive transport capacity cannot be fully exploited. In the 1950's the railway monopolized both passenger and freight traffic, and in the 1980's it still undertakes more than half of the converted turnover volume. Water transport accounts for 37.5 percent of the volume while truck, pipeline, and civil air transport, all modern means of transport, account for only 10.9 percent. In air transport, there are only 600 scheduled flights, less than two-thirds that of Kaitek Airport in tiny Hong Kong. In 1980, China's pipelines handled 4.3 percent of the total national freight turnover, compared to 19 percent in the Soviet Union in the same year. The results of this irrational structure are as follows:

1. Overburdened Railways

In addition to the long- and medium-distance transportation of passengers and cargoes throughout the country, railways also handle a great deal of passenger and freight traffic on short-distance runs. At present, 40 percent of the railway traffic is over a distance of less than 200 km, and the average distance for passengers is only 151 km. The advantage offered by highways, which are more suitable for short-distance hauls, is not yet brought into play. The density of freight traffic in the coastal seas, which have good potential, is only some 13 million tons per kilometer, and the role of the Chang Jiang cannot compare favorably with that of a railway trunkline. Many inland rivers are left idle.

2. Inappropriate Layout of Routes

China's northeastern and coastal regions are densely populated, accounting for 77 percent of the total national population, 87 percent of the GVIAO, and

80 percent of railway traffic. During the Third and Fourth 5-Year Plan periods, railway construction was concentrated in the region west of the Beijing-Guangzhou Railway, and 86 percent of the investment was spent on inland railway construction. After completion, traffic on these lines was not heavy, and not much purpose was served. These new lines were neither economically nor strategically necessary. According to statistics, the three railway administration bureaus in Chengdu, Xi'an, and Kunming possessed more than 30 percent of the fixed assets of all the railways in China, but the traffic they handled was only 9 percent. Again, in Hunan, water transport was well developed and more than 285 rivers were navigable. Even though river transport badly needed support, the Liling-Chaling Railway was built. With a traffic volume of 400,000 to 500,000 tons, this railway lost more than 300,000 yuan every year, even after capturing the freight traffic from some nearby waterways.

C. Transportation Capacity Inappropriate for National Economic Requirements and People's Livelihood

In the past 30 years, the mileage in China's transportation network has increased 6.3-fold, while the turnover of passengers and freight has increased 44.5- and 15-fold, respectively. The railway's passenger and freight turnover increased 10- and 30-fold, respectively, but its mileage increased only 1.3-fold. The daily loading capacity of railways can meet only about 85 percent of the demand, and only 40 to 70 percent of it in certain restricted sections. As a result of the tremendous pressure on railways from energy transportation, one-fourth of the equipment in those areas where industries are concentrated has lain unused for a long time, causing a loss of 70 to 80 billion yuan in industrial output value and about 20 billion yuan in net income. The strain on passenger transport is also very serious, since the passenger express trains on several major lines are always 30 to 100 percent overloaded. The passenger and freight turnover on highways have increased 90- and 30-fold, respectively, while the highway mileage has increased only 10-fold. The technical standards of highways are low, and not many highways are in good condition. The transportation departments, supposedly serving society, have too few vehicles. Service is poor and people have serious problems in buying tickets and riding cars. In water transportation, the traffic volume handled by barges increased 26-fold, but the transport capacity increased only 10-fold. The total number of berths in the harbors is less than 330, no more than that of a single harbor in Hamberg, New York, or Rotterdam. The traffic-handling capacity of the coastal harbors can meet only 80 percent of the demand. There are usually 200 to 300 foreign ships remaining in the port, and only some 90 of them have their hatches open for loading or unloading. The demurrage paid amounts to $200 million a year.

D. Backward Transportation Equipment

The technical equipment for all modes of transportation in China is fairly backward, and this is particularly true of motorized equipment. The economically developed countries have phased out their steam locomotives in order to solve the problems of low heat efficiency and environmental pollution. In

China, steam locomotives still account for 74.5 percent of the 10,360 locomotives, and more than 4,000 of these steam engines have been in service for more than 40 years. Among highway vehicles, gas consumption is heavy because of their backward engines. Gas consumption of the vehicles in the departments specially in charge of transportation is 8.5 liters per ton/km, whereas in the industrially developed countries, the consumption is only 5 liters. The Jiefang [Liberation] truck, now occupying an important place in China's vehicle fleet, was originally imported in the 1950's. So far it has not been improved at all, while its foreign counterpart Ji'er-[phonetic] 130 has undergond great changes.

Following is a comparison between the "Jiefang" and "Ji'er-130" in the major technical indices:

	Load	Power	Gas consumption
"Jiefang"	4 tons	95 hp	29 liters/100 km
Ji'er-130	6 tons	138 hp	28 liters/100 km

The economic indices of the diesel engines used in waterway transportation, made in the 1950's, are all very backward. There are more than 700 models of diesel engines used in the vessels of water transportation enterprises directly under the Ministry of Communications. These engines are old and use a lot of gas. Pipelines, though a newcomer, are equipped mostly with 1950's-vintage equipment. Their efficiency is low and energy consumption high.

Despite the general backwardness of the equipment for all modes of transportation in China, energy consumption in transportation here is still lower than in foreign countries, because China's communications and transportation are not well developed, the amount of powered equipment is small, and particularly because there are not so many vehicles, large or small, on the highways here as in foreign countries. In China, the annual energy consumption on communications and transportation is some 40 million tons of standard coal, approximately 8 percent of the national energy consumption, whereas in the United States, the Soviet Union, and Japan, the consumption is 2.5 billion, 1,445,000,000, and 439 million tons of standard coal, or 26 percent, 8.8 percent, and 15 percent of the national consumption, respectively.

E. Low Standard of Business Management

Poor business management in communications and transportation is shown in the following aspects:

1. Transportation Capacity Not Efficiently Used

For a long time, the passenger and freight traffic of railways have been concentrated on the principal trunklines totaling somewhat more than 10,000 km. The congestion in these lines has not been alleviated all these years; on the contrary, it has even been increased. The emergency signal in transportation capacity and the failure to accommodate passenger and freight traffic by no means signify the exhaustion of the railways' capacity, since there are very few railways whose traffic has reached the saturation point. Railways incurring losses year after year because of load shortages are by no means isolated instances. While air tickets are hard to buy, airplanes are not fully utilized. In the case of the Boeing 747, which has the highest utilization rate, China's utilization is only 5 hours per day, whereas in foreign airlines, it is more than 10 hours, and even 14.5 hours in Swiss Airlines. Transportation capacity in the coastal seas south of the Great Wall was originally adequate, and yet the Lu-Ning pipeline was built to reduce the coastal sea traffic. The pipelines do not have enough traffic either. According to statistics, the capacity of oil pipelines in China is 220 million tons a year, but only slightly more than 100 million tons is being carried, thus the effective utilization rate is less than 50 percent.

2. Long Construction Period

In the 1950's, the construction period for 100 km of railway was less than 1 year; now it has increased to 2 years and 4 months, along with increased construction cost. Before 1965, the average cost was 680,000 yuan per km; after 1966, it rose to 2.22 million yuan, and now the cost of some railways under construction tends to exceed 3 million yuan per km.

3. Improper Distribution of Vehicles

Too many vehicles in China have been issued to factories, mines, enterprises, government departments, and mass organizations, accounting for 87 percent of all vehicles. As a result, many of these vehicles are left idle, while the share of departments specially in charge of transportation is only 13 percent. The transportation efficiency of the former category is only one-fifth of the latter, but their gas consumption is one-third to one-half higher. This means not only the use of huge state funds and higher fuel consumption, but also the lack of a guarantee that the demand for the service of vehicles can be met.

4. Reduced Mileage of Navigable Inland Rivers

The mileage of navigable inland rivers in China was increased to more than 170,000 km in the early 1960's. Because of the lack of comprehensive utilization of water resources, overall planning, and similar measures, the need for water transportation was overlooked in the construction of water conservancy and hydropower projects, and the number of sluicegates and dams obstructing navigation have increased every year. Of more than 4,000 sluicegates and dams in the country, 62 percent obstruct navigation, causing the reduction of navigable mileage to the present 108,000 km, with the corresponding reduction in waterway traffic. Because of insufficient traffic, the local people engaged in river transportation are losing money every year, and some of them have been forced to change their occupation.

III. Forecast for 2000

There are many methods of forecasting. Restricted by the means and conditions, however, the method used in this article to forecast what may be accomplished in 2000 is mainly one of trend extrapolation. The results of this forecast of prospects for development in China's communications and transportation will obviously be sketchy.

A. Volume of Communications and Transportation

The volume of transportation reflects the extent of demand on the communications and transportation facilities by various sectors of the national economy in the course of construction and by the broad masses of people in their daily life. At the same time, it provides the reference data for the state to develop its communications network, to transform the existing lines, and to add to or renovate facilities.

Experts from various communications and transportation departments and research units have used different means of late to project passenger and freight traffic volume for different modes of transportation separately in 2000, and the consensus is that by the turn of the century, the national freight traffic will exceed 15 billion tons (including more than 9 billion tons handled by noncommunications departments on the highways), and that passenger traffic will be more than 16 billion persons.

The freight and passenger traffic by various modes of transportation will be as follows:

Freight Traffic (100 million tons)

	1980	2000
Railway	11.12	22
Highway	38.2	115
Waterway	4.26	14
Pipeline	1.05	3
Total	54.63	154

Passenger Traffic (100 million persons)

	1980	2000
Railway	9.22	24
Highway	22.28	130
Waterway	2.64	5
Civil aviation	0.0343	0.27
Total	34.17	159.27

Forecast of Freight Turnover for Various Modes of Transportation

(Unit: 100 million km)

	1980	2000
Railway	5,717.21	13,200
Highway	255.06	4,370
Waterway	5,052.76	17,836
Civil aviation	1.41	34
Pipeline	491	1,500
Total	11,517.44	36,940

By the turn of the century, the progressive rate of increase in the total traffic by various modes of transportation is 5.3 percent, while those of railway, waterway, and pipeline are 3.4, 5.6, 6.1, and 5.3 percent, respectively. Passenger traffic in 2000 will increase 3.6-fold over 1980, at a progressive rate of 8 percent each year, with railway, highway, waterway, and civil aviation increasing 4.8, 9.2, 3.2, and 8.6 percent, respectively.

B. Railway Construction

To what extent the operational mileage of China's railway will be increased in 2000 is a matter of concern to the whole country. In recent years, the departments and experts concerned, proceeding from different prospectives, have made various forecasts on the future mileage of China's railways. Among the forecast mileages, the longest one is more than 100,000 km, and the shorter ones are 60,000 and 70,000 km.

The development of China's railways will be subject to restrictions by the state's financial and material resources and the size of the work force, and, at the same time, determined by China's general and specific policies on communications construction. In view of the complex topography of China, the difficulties in construction, the rather heavy investment required for new lines, the backward technical equipment of the old lines, and the fairly concentrated traffic, it would be consistent with the national conditions to adopt a policy of both increasing mileage and improving technical equipment, because, by this means, we will increase the capacity of old lines through technical transformation and actively develop new lines in an effort to form a railway net at an early date. Thus, it may be appropriate for the railways' operational mileage to be increased to 75,000 to 80,000 km in 2000, in which case, 23,000 to 28,000 km of new lines have to be built in nearly 20 years, averaging 1,150 to 1,400 km each year. This will be more than China's best record of 960 km a year and the task will be quite arduous.

Of course, it will be possible for the railways to handle the future traffic with even less operational mileage. However, sole reliance on intensive development will also create problems. If the level of technical equipment of various types is excessively raised, traffic will be universally excessive. Then every railway may become a "trunkline," and it will not be easy for a railway network to be formed in the near future. In the long run, building more railways will not only benefit national economic construction in this century, but will also produce important effects in the next century. Another reason for the increase is that the density of railways in China, in terms of either territory or population is lower than in the industrially developed countries and even India. Based on an operational mileage of 80,000 km in 2000, China's future railway mileage will be only 0.83 km per 100 square km and 0.66 km per 10,000 persons, while India now has 2.04 and 0.92 km, respectively.

At the end of this century, China's railways of 80,000 km will handle a traffic volume of 1,728 billion converted ton/km, averaging 21.6 million ton km per km, which is higher than the 13.68 million ton km per km in 1980 by 5 percent. Even though this is equivalent to 80 percent of the Soviet Union's converted density of 26.7 million tons in 1980, China will still be among the few countries with low railway densities in the world.

In the future, stressing the need for rational division of work and coordinated development among all modes of transportation does not mean that railway construction has to be slowed down to wait for the other modes to catch up. Along with the progress in the other modes of transportation, in due course the proportion of traffic handled by railways may be reduced. However, the role of railways in transportation and the volume of traffic handled by them will not be reduced. Therefore, the other modes of transportation should develop more rapidly in order that communications construction may enjoy its priority in the national economy. To fulfill the future task of railway construction, it should be emphasized that different design standards should be adopted according to different requirements in building new lines in the future. Difficult terrain and the radius of curves and limiting gradients of new lines should conform to the proper standards.

As for manpower, we should tap our scientific and technical potential and organize a modern, mechanized work force as well as make full use of China's abundant human resources. As for the source of funds, we should break away from the old conventions and open more avenues. Although communications and transportation enjoy priority in state investment, such investment is only limited. As a matter of policy, it would be best to encourage local investment. For key railway projects, absorption of foreign funds on a large scale is also an important source of funds.

C. Highway Transportation

Because of the change in economic structure, the proportion of instruments and meters for light industry and high-grade commodities for daily use, all of high value and in small shipments, will be sharply increased in the freight traffic for trucks, and the rate of increase in short-distance transportation of passengers and cargo will greatly exceed past records. Therefore, highway construction must be developed rapidly in order to meet the demand.

1. Highway Construction

Although highways should be built as extensively as possible in order to improve communications in the poor and remote areas and to raise the people's living standards, the limitations of financial and material resources should be considered. Therefore, the construction of new highways must be within the limits of our resources. Since the founding of the People's Republic, an average of 25,500 km of highways have been built each year. The transformation of highways is an arduous task requiring huge funds; we should, therefore, be satisfied with the completion of 26,000 km of new highways each year. According to this estimate, we will still be able to build 520,000 km of new highways by the end of the century, and the total mileage in the country may then reach about 1.43 million km.

2. Size of a Constant Vehicle Fleet

Vehicles are the second material basis for the development of highway transportation, and the number, quality, and management of vehicles have a direct bearing on that development. At present, China has more than 2 million vehicles of various types, 49 times the total number shortly after the founding of the People's Republic. In the past 30 years, the average rate of increase in the size of the vehicle fleet was 12 percent each year. If the same speed of development can be maintained hereafter, then in 2000 China's vehicle fleet will consist of more than 15 million vehicles. However, since China is a socialist country, the development of the entire national economy cannot be a spontaneous objective process, and the number of vehicles in the future will be determined by the state's communications policy, the energy output and the situation of supply and demand. It may be imagined that in the future, some private car owners will be permitted to engage in transportation, and productive capacity will be increased from that of 230,000 vehicles at present to 800,000 in 2000. If the output of crude oil reaches 200 million tons and the amount exported is not greatly increased; and if gas consumption falls to the level of foreign countries in the 1970's, then it is possible that China will have a constant fleet of more than 6 million vehicles.

D. Waterway Transportation

When the time comes for all modes of transportation to undergo synchronized development, construction in waterway transportation must be speeded up and be given priority before it can help alleviate the strain on communications and transportation.

1. Harbor Construction

At present, China has 58 harbors, large and small, that are capable of handling a traffic volume up to 100,000 tons. Of this number, 15 are directly under the Ministry of Communications, with 330 large and small berths, including 143 deepwater berths. The number of harbor berths is now seriously insufficient. It is estimated that the number of deepwater berths may be increased to 300 in 1990, with a traffic handling capacity of 450 million tons. The Shanghai, Tianjin, and Huangpu harbors will become important international container centers. By that time, the problem of demurrage in foreign trade may be solved.

In 2000, the number of deepwater berths in coastal harbors may be increased to about 450, with a traffic-handling capacity of about 700 million tons.

2. Improvement in Ships

To eliminate the defects in China's sea fleet, such as obsolete or backward ship models and low business efficiency, the main task in the future is to update the ships produced in China and to phase out the old ones so as to change the composition of the fleet gradually. It is estimated that in 1990, the transportation fleet directly under the Ministry of Communications will be developed to more than 28 million tons, and will be able to accommodate 190,000 passengers. The fleet will include about 18 million tons of ocean-going ships with enough space for 10,000 passengers, 4.2 million tons of ships for the coastal seas with enough space for 70,000 passengers; and 4 million tons of Chang Jiang ships with enough space for 120,000 passengers.

In 2000, the total transportation fleet in the country may develop to 40 to 45 million tons, including 20 to 25 million tons of oceangoing vessels.

3. Strengthening Inland River Transportation

China has many rivers with sufficient waterflow and a good basis and great potential for waterway transportation development. Because of its limited investment over many years, many of these rivers have been left in their natural state. There are only some 50,000 km of channels with a depth of over 1 meter and capable of accommodating ships of 50 or more tons, and these channels account for only half of the inland river mileage.

In the future inland waterway construction, work on navigation channels, especially the dredging and improvement of those with a depth of more than 1 meter, should be given priority. For rivers in mountainous areas, water-conservancy and power-generation projects should be coordinated with the building of structures for navigation so that the navigation channels will be canalized. Navigation should be considered first in working on major trunks and tributaries. Within the present century, we should first attend to the Chang Jiang, the Zhu Jiang, the Heilong Jiang, the Huai He and the Beijing-Hangzhou Canal. These five will serve as the main components of a water network directly connecting the lakes, seas, and other rivers of the country, so that there will be 15,000 km of navigation channels to accommodate ships of 300 to 500 tons and 10,000 km to accommodate ships of 1,000 tons. Dredging and other improvement of the shoals at the mouth and the middle and lower reaches of the Chang Jiang will enable 50,000-ton ships to sail at reduced loads into the Baoshan Iron and Steel Complex, and 10,000-ton ships to sail to Nanjing throughout the year.

There are now more than 2,400 dams obstructing navigation channels. Among these navigation channels, some 1,300 are due for, and some 160 others are in urgent need of, reactivation. Since the issue of reactivation involves many issues, its solution cannot be simple. That is why by the turn of the century, the mileage of navigation channels will not be increased much through reactivation. However, there is no doubt that the quality of river channels and the technical equipment of harbors will be greatly different.

E. Air Transportation

China's international and domestic air transportation networks are now in their fledgling stage. However, the foundation and actual resources of its aviation industry are still weak. In civil aviation, the number of transportation aircraft is less than 3 percent of the number used in the Soviet Union and the United States for commercial flights. It has now 75 airports, only 1.3 percent of the number in the United States and 36 percent of that of India. According to estimates by the departments concerned, China's passenger traffic in 2000 will reach 27 million persons, 7.8-fold that of 1980, and its air transportation turnover will reach 3.4 billion ton km. To meet the requirements for future development, we should strengthen the adaptability of the airports and the air fleet with the improvement of economic results as the central task.

1. Updating Aircraft

Most of our airplanes were produced more than 20 years ago. The fleet consists of many different models and their maintenance is difficult. Except for the three Boeing 747's, the rest should all be updated. Since the total turnover in air transportation will reach 1.4 billion ton km in 1990, some long-range and medium-range airplanes should be added gradually. Within this century, the short- and medium-range airplanes should be home produced on a self-sufficient basis. For major domestic routes and international flights, it should increase its competitive power by purchasing a certain number of foreign aircraft with advanced equipment and huge modern bodies.

2. Airport Construction

There are now 75 civilian airports, only a small number, with low-capacity, backward equipment and poor ground service. Airplane layover time is long, and most airports do not have night-landing, or instrument-landing facilities. To increase air traffic capacity, first-class airports should be built along some main routes or at tourist spots to accommodate medium-size or larger airplanes. In 1990, the present airports in Changsha, Dalian, and Nanchang should be altered or expanded, while new airfields or civilian airports should be built in Duanhuang, Dadong, Qingdao, Quanzhou, and Lushan, so that the number of second-class airfields will be increased to more than 30. By the turn of the century, there will be 17 first-class airports throughout the country.

F. Pipeline Transportation

In the world, no less than 60,000 km of pipelines are being built every year. In 1980, the Soviet Union alone had 2,017,000 km of pipelines for transporting crude oil, oil products, and natural gas. Foreign experts are of the opinion that the most significant feature is the combination of channels and technical tools of transportation. In view of the possibility of large shipments in the future, the use of pipelines may relegate railways and highways to a place of secondary importance. In the distant future, pipelines will not only be able to transport various kinds of solid cargoes, but also become a means of passenger transportation at very high speeds.

China's energy resources are mostly located in remote and bleak areas. If it wants to ship out these resources in a speedy and economical way, pipelines should become an effective means. By the end of the century, the volume of freight traffic by pipelines will reach 300 million tons and the freight turnover will be 195 billion ton/km. The total length of pipelines may be increased to 20,000 to 25,000 km. In the future, besides actively and yet cautiously building more pipelines for transporting crude oil, petroleum products and natural gas, we should also make great efforts to transform the present pipelines and improve their technical and business management in order to raise the effective utilization rate as much as possible.

IV. Suggestions and Tentative Ideas

Dialectical materialism tells us that all matter, phenomena, and processes are interrelated, independent, and codeterminant. If communications and transportation cannot ensure that the requirements for the national economy and the people's livelihood are met, they will adversely affect industrial and agricultural development and become restricting factors in national economic development. To change the present conditions of communications and transportation and thus open a new prospect for this industry, we must, besides greatly strengthening communications construction by improving the equipment, also rely on the efforts of various sectors of the national economy to improve their own positions in order to create favorable conditions to bring into play the superiority and potential of various means of communications. Only thus can they supplement and influence one another so as to turn communications and transportation from a restricting factor into an impetus to national economic development.

A. Readjustment of Industrial Structure, Development of Various Energy Resources

When the productive forces have already taken shape, the usual task in economic construction is to meet the requirements for the national economy and the people's livelihood by minimizing the volume of transportation and the amount of consumption through constant readjustment of the industrial structure over a long period of economic construction. Since the founding of the People's Republic, however, China has had several significant ups and downs in economic construction, which has been readjusted several times. Because of the haste to reach short-range goals, the need for a rational industrial structure was to a certain extent neglected, and the readjustment of this structure did not receive due attention. The scope of industrial construction was overexpanded in those areas where neither raw materials nor fuel were produced, and some areas producing some natural resources with high output were engaged in only a single product line. In the industrial areas where enterprises were concentrated, raw materials and fuel were lacking. As a result, raw materials, fuel, and industrial products crossed one another in transportation on a national scale. This cross transportation not only increased the proportion of irrational traffic and exerted more pressure on transportation facilities, but also brought tremendous economic losses to the state. The fundamental measures to change this situation are as follows:

1. Establishment and Development of Comprehensive Industrial Bases

Since China's resources are unevenly distributed, and its industrial structure is now irrational, it can take advantage of the superiority of its socialist system and bring into play the role of planned economy in replacing the single-line production of the resource-producing areas with economic diversification in its future construction program, so that the areas producing raw materials and fuel can be processed and disposed of locally, thus greatly reducing the amount of raw materials and fuel to be sent out as well as increasing local industrial output several times over. The experiences of the Ruhr in the FRG can provide some good points of reference. The industrial Ruhr region accounts for only 3.3 percent of the country's territory; however, 90 percent of the coal industry, 80 percent of the steel industry, and one-third to one-half of the chemical industry, oil-refining industry, machinery industry, and electric-power industry of the country are concentrated in this region. Because of the density of industry here, only 30 million tons of its annual coal output of more than 100 million tons is shipped out of the region, leaving all the rest for local processing or consumption. Because of its rational industrial layout, the GVIO of the country in the 1960's rose 126 percent a year, while its railway freight traffic increased only 10 percent. In the same period, the GVIO of the Soviet Union increased 95.7 percent, while its railway freight traffic increased only 54 percent.

In the northern and northwestern parts of China with their rich resources, conditions are favorable for them to be developed into comprehensive industrial areas. Shanxi, for example, has rich coal deposits, and the present annual output exceeds 100 million tons. There are also reserves of iron, copper, aluminum, zinc, molybdenum, gold, sulphur, and phosphorus, and in its western part, close to the provincial border, there is the Huang He with abundant waterflow, in addition to the Feng He, the Qin He, the Sanggan He, the Hu He and scores of other rivers to supply water for industrial purpose. It also has abundant manpower and good communications facilities. From either the economic or the technical point of view, these areas should be developed into comprehensive industrial regions.

2. Acceleration of Nuclear Power, Hydropower, and Other Energy Development

If the regions producing raw materials and fuel are developed into comprehensive industrial regions, then the original industrial regions, such as the south-central and eastern parts of China will experience urgent energy problems. The solution may be found in the use of substitutes, such as nuclear power, hydropower, and other new energy resources. In the world as a whole, conditions are now ripe for the use of nuclear power, and more than 290 nuclear power stations are already in operation and are generating 8 percent of total world power output, in 24 countries and regions. The United States has 67 of them in operation, and in the Soviet Union, 24 of them have already been built and their power generation in 1980 reached 72.9 billion kwh, 5.6 percent of the total power generation in the country. Most Soviet nuclear power stations are close to the areas of power consumption. In parts of Europe, 11 nuclear power plants are already in operation with another 10 under construction. Construction of nuclear power plants is just beginning in China, and the natural uranium resources already verified can be the source of fuel for the continuous operation of nuclear power stations for many years. Thus it is not only necessary, but also feasible, for nuclear power stations to be developed.

Next, China should vigorously develop hydropower generation. It has abundant hydropower resources, with a potential of 680 million kw, more than the Soviet Union and the United States combined. However, China's exploitation and utilization rate is only 3.4 percent. Each kwh of hydropower generated equals 400 grams of standard coal. Since more than 1.97 trillion kwh can be exploited in the country, full exploitation means an increase of 800 million tons of standard coal each year. In the 900-km river channel from Longyangxia to Qingtongxia in the upper reaches of the Huang He, exploitation of the 10 and more cascades with an installed capacity of 12.6 million kw will generate 49.3 billion kwh, equivalent to 19.72 million tons of standard coal, a year. For the industrial regions in eastern China, where energy resources are inadequate, the transfer of power from the west to the east can be considered.

In developing hydropower stations at present, there are several questions of understanding to be answered. For example, is the investment in hydropower projects larger and the construction period longer than is required for thermopower projects? An isolated comparison between a hydropower and a thermopower project cannot be realistic, and the result must be misleading. Hydropower stations do not consume fuel, while one 1-million-kw thermopower station must consume 3.5 million tons of fuel a year. The comparison can be objective only when the coal to be consumed by thermopower stations, the special railways for the transportation of coal, and the investment in coal mining are taken into account. One 250,000- to 500,000-kw hydropower station requires a construction power of 3 to 5 years, and one of 1 million kw or more requires 6 to 8 years. The Xinanjiang hydropower station with an installed capacity of 662,500 kw was completed in 3 years, and the Liujiaxia hydropower station of 1,255,000 kw was completed in 7.5 years. On the other hand, a medium-size thermopower station requires a construction period of 2 to 3 years, while a large one requires 3 to 5 years. If the time required to produce the coal is included, 5 to 8 years are required to build a thermopower station, since 10 to 15 years are required to complete a colliery with an annual output of 5 to 10 million tons, and it takes 5 years from the beginning of its construction for the coal to be produced. Thus, the construction period of a thermopower station is longer than that of a hydropower station. The cost of power generation per 1,000 kwh is 11 yuan for hydropower stations and as much as 31 yuan for thermopower stations.

B. Taking Advantage of the Superiority and Potential of Various Modes of Transportation

Despite the great strain on China's capacity for passenger and freight transportation, the role and capacity of various modes of transportation, especially of waterways, have not been brought into full play. China has 5,800 natural rivers with a total length of 430,000 km. Most of the rivers have abundant waterflow and are ice-free throughout the year. Yet in the transportation system, inland waterways do not play any significant role. The Chang Jiang, for example, is the main river which can bring inland China into contact with various parts of the world. Ships of 1,000 tons can sail in this river all the way to Congqing in a 2,500-km trip. However, its share of traffic is only some 80 million tons. The Mississippi River of the United States is also a large inland river. After many years of general improvement, its freight traffic exceeds 400 million tons, even though its trunk mileage is less than 2,900 km.

To ease the present pressure on transportation capacity, the following actions should be taken:

1. Strong Support for Inland Waterway Transportation

To alleviate the great pressure on railways, we should bring into play all the strong points of inland waterway transportation by fundamentally improving the navigation facilities and technical equipment of ships. Besides carrying heavier loads, requiring less investment, and consuming less fuel, inland river transportation, compared with land transportation, also has the advantage of occupying little or no land. One kilometer of highway occupies 30 to 100 km of land. Generally, the higher the road standards, the more land it will occupy. Most of China's highways are of lower standards, and based on an average of 40 mu of land for 1 km of highway, then, in 2000 when there will be 1.43 million km of highway, 57.2 million mu of land will be occupied. Another 1.8 million will be occupied by garages for more than 6 million vehicles (including entry and exit lanes for garages). Then with the addition of 80,000 km of railways (based on an average of 55 mu per km of railway), a total of 63.4 million mu of land will be required. In developing inland river transportation, with the exception of some land occupied by harbors and warehouses, hardly any land is required. Therefore, we should invest more to expedite the construction of navigation channels and harbors in order to develop the various principal navigation routes and at the same time, take care of flood prevention, irrigation, water transportation, power generation, breeding, the supply of water for industrial purposes, and other comprehensive benefits.

2. Building Plants Along Rivers To Be Encouraged

One important link in improving the distribution of productive forces is to develop inland river transportation, reduce the steps of cargo loading and unloading, and ensure the availability of large and steady shipments. In the industrial structure, the economically developed countries attach great importance to the utilization of the strong points of waterway transportation, and large plants and enterprises are, if at all possible, built close to waterways, even though canals have to be dug for such purpose. To take advantage of the river transportation facilities offered by the Mississippi River, more than 10,000 plants and enterprises were built along its banks from the 1950's to the mid-1970's in the United States.

3. Present System of Administration Over Navigation Channels To Be Changed

At present, many inland rivers for navigation are divided into sections to be controlled by different administrative districts, and the continuity of navigation is thus arbitrarily interrupted. These interruptions have unnecessarily increased the work of loading and unloading. For example, the navigation facilities in the whole 840 km section of the Xi Jiang from Nanning to Guangzhou are quite good. However, Guangdong and Guangxi have separate jurisdictions over this section, with Wuzhou as the mutually agreed dividing point where loads have to be transshipped. This procedure not only increases transportation cost but also takes more time.

C. Strengthen the Transformation of Old Routes, Energetically Update Equipment

While accelerating the construction of new routes for railways and highways within this century, technical transformation for the existing routes is still an important construction task. Technical transformation not only requires less investment and produces better results, but also saves time. Some railways left before the liberation and transformed many times after the founding of the People's Republic, have undertaken the arduous task of passenger and freight transportation. According to statistics, every 10,000 yuan spent on transformation can contribute an average of about 300,000 ton km of cargo turnover, while the same amount spent on building new routes can contribute only 70,000 ton km. After technical transformation, old highways will be raised to a higher technical grade, and transportation efficiency will also be increased so that each 1,000 ton km can increase revenue by 27 to 39 yuan, besides saving a large quantity of fuel.

1. Transformation of Old Railway Lines

In transformation, priority should be given to the trunklines now laboring under heavy passenger and freight traffic, and the major lines linking the southwest and the northwest. Transformation implies numerous jobs, but the main ones are increased double tracking and the strengthening of motive power. These measures, together with improvement of the blocking system and other related equipment will substantially increase traffic-handling capacity. The hauling capacity of double tracks with automatic blocking can be increased to more than 50,000 tons, equivalent to that of 3 to 4-1/2 semiautomatic-blocking single tracks. At present, China has only 8,000 km of double tracks, only 15.4 percent of the total operational mileage, whereas in the Soviet Union and Japan, the proportion of double tracks is about 30 percent, and as high as 75 percent in England. By the turn of the century, China should strive to increase its double tracks from 8,000 km to 16,000 km, so that they will account for 20 percent of the total operational mileage. Then its traffic handling capacity will be much increased.

2. Transformation of Old Highways

China's highways are substandard. There are 14,600 km of grade-1 and grade-2 roads, 1.6 percent of the operational mileage; 111,600 km of grade-3 roads, 12.4 percent; and 410,400 km of grade-4 roads, 45.7 percent. The remaining 40.2 percent of roads are not even fit for grading. Highways surfaced with asphalt, oil, and cement account for 17 percent, and good-weather highways, 27 percent. In the highway network, there are more than 6,000 km of roads that are unconnected with one another due to damaged sections, 5,800 dangerous bridges, and more than 200 ferry points on trunk roads. All these roads should be quickly transformed by repairing the damaged sections, demolishing the dangerous bridges, building bridges at ferry points, and upgrading many highways. The tentative highway composition in 2000 will be as follows: 8,000 km of grade-1 roads, 140,000 km of grade-2 roads, 480,000 km each of grade-3 and grade-4 roads, and 320,000 km of ungraded roads. Their proportions in the total operational mileage will be 0.56 percent, 9.8 percent, 33.5 percent, 33.5 percent, and 22 percent, respectively [all figures as published].

3. Updating Technical Equipment, Improving Transportation Tools

Most of the technical equipment in the communications and transportation departments of China are still at the 1940's or 1950's level. The energy consumption is high, and the motive power is low.

a. Accelerating the Updating of Locomotives and Rolling Stock: The industrially developed countries have devoted 15 to 20 years to the phasing out of steam locomotives, while China's railways are still mainly relying on steam locomotives, which are handling 80 percent of the freight turnover. To transport coal on special lines with heavy loads and at high speed, the prerequisite is the adoption of advanced motive power. If electric locomotives replace steam locomotives, traffic capacity may be doubled or trebled. Again, if the load capacity of cars is increased and station stops suitably reduced, effective motive power may also increase in direct proportion. The Soviet Union's electrified railways total 42,400 km and rank first in the world. Although their length is only 29 percent of the national railway mileage, and 3.3 percent of the world mileage, these railways handle 53.6 percent of the national railway traffic and 25 percent of that of the world.

China now has 10,360 locomotives, including 7,718 steam, 2,326 diesel, and 317 electric locomotives. To meet future requirements, the power of locomotives must be universally increased as a prerequisite. By the turn of the century, China must have no less than 20,000 locomotives, including 4,000 electric locomotives, 20 percent, 12,000 diesel engines, 60 percent; and 4,000 steam locomotives, 20 percent. In this way, the electric locomotives will be able to handle about 60 percent of the traffic; the diesel locomotives, 25 percent; and the steam locomotives, about 15 percent. According to this motive power structure, China's motive power for railways can be said to have been modernized by 2000, although it will still have steam locomotives. This is, however, consistent with China's national conditions.

The number of freightcars is small in China's railway system. There are only 270,000 of them, averaging 5.2 per kilometer. The number of special cars account for only 16.3 percent of total number of freightcars, and most of them are oil-tank cars. The average indicated load capacity of the freightcars is 51.4 tons, much less than in foreign countries. The Soviet Union has 1.7 million freightcars, averaging 12 per km, and 30 percent are special cars, with an average load of 63 tons. In the United States, the proportion of special cars is more than 50 percent, with an average load of 70 tons. To meet the requirements in 2000, the number of China's railway freightcars should be increased from the present 270,000 to 600,000, with the indicated load increased from 51.4 tons to 56 to 58 tons. The proportion of special cars should be increased from 16.3 percent to 30 percent. It now has 14,000 passenger cars, averaging less than 0.3 cars per km. If the number is increased to 60,000, the great pressure on passenger cars may be reduced.

b. Changing the Technical Backwardness of Vehicles: "Jiefang" trucks, now mostly used in China, were imported in the 1950's. Up to now, there has been basically no change in these trucks, and all the technical performance indices still remain at the original level. The gas consumption is 230 grams/

horsepower hour, and the ratio of body weight to load is 1:1, while in foreign countries, gas consumption has been reduced to 191 gram/horsepower hour, and the ratio of body weight to load is 1:2. There is no doubt that these trucks are due for upgrading or elimination. According to statistics, the old vehicles updated by the "Dongfeng EQ-140" model, produced by the "Second Motor Car Plant," compared with the old "Jiefang" brand, save 16.3 percent in gas, and reduce transportation cost 18.5 percent. If they are updated to the 8-ton "Huanghe" diesel trucks made in China, the fuel can be saved by 58.2 percent. In addition, we should quickly change the preponderance of medium-tonnage vehicles over large- and small-tonnage vehicles.

At present, large and medium-size vehicles in Japan and the FRG use diesel engines. The main advantage is that fuel consumption can be reduced 30 percent and service life can be 30 to 47 percent longer. China produces only a limited number of diesel trucks, fewer than 5,000 a year, with a grand total of only several tens of thousands. If we can change this situation and accelerate the production of diesel trucks, our job will be of great significance in energy conservation and reduction of transportation costs.

D. Construction of a Multilevel Transportation System Befitting China's National Conditions

China's national economic development and industrial progress in the present century doubtlessly rely on a modern transportation system composed of railways, highways, waterways, civil aviation, and pipelines. Because of China's vast territory and the fact that 80 percent of its population is spread out in the countryside to engage in agricultural production, the system of responsibility for production with households as units will continue for a long time. Since most households cannot own private vehicles, the traditional means of transportation, such as animal-drawn carts, sailboats, sculling boats, wheelbarrows, and bicycles still form an important level in China's transportation structure. Let us take bicycles, for example. There are more than 90 million bicycles in the country, and each year, they handle a passenger turnover of more than 360 billion persons/km, 1.5-fold the sum total of several modern modes of transportation, such as railways, highways, waterways, and civil aviation. Besides, bicycles also handle an incalculable volume of freight traffic. From this, we can see that making use of the traditional means of transportation is of great strategic significance to China.

At present, in the rural production teams (natural villages), over a distance of 1 to 5 km, wheelbarrows (push carts) and bicycles are mostly used, with tractors next in line, for the transportation of fertilizer, seed, grain, indigenous products, and agricultural sideline products to and from the field. Even in the communes (townships), for a distance of 5 to 10 km, these means of transportation still play an important role in addition to motor vehicles. Therefore, the role of these traditional means of transportation in directly serving agriculture, in bringing about contact between urban and rural areas, and in promoting material and spiritual civilization in the remote areas, must be affirmed, and the departments concerned should give them the necessary support, improve their structure so that they can be more labor-saving and effective, and, if necessary, find some new way to use them to special advantage.

E. Increasing the Coal-Dressing Rate To Reduce Transportation

In China, coal is always transported in large shipments which account for 35 to 40 percent of railway traffic, 25 to 30 percent of waterway traffic, and 23 to 25 percent of highway traffic. Since the capacity of only 105 coal-dressing plants in the country is limited, the coal being transported contains large quantities of waste and ash, causing much wasteful transportation. Railways alone transport 30 million tons of rocks a year. More than 14 million tons come to Shanghai each year. If the average distance covered is 1,000 km and the coal contains 10 percent waste and ash, then 1.4 billion ton km of the transport capacity will be wasted every year, and the locomotives must consume 18,000 tons of standard coal in addition. That is why great efforts must be made to raise the dressing rate. In industrially developed countries, the dressing rate is about 60 percent, while in Japan, it is more than 90 percent. In China, it is about 20 percent generally and only 30 percent for state-distributed coal. If the rate for state-distributed coal can be raised to 60 percent, then each year, we can reduce the load by 50 million tons and save 180 million yuan of transportation expenses, equivalent to the investment required to build four coal-dressing plants of a capacity of 3 million tons. Therefore, the early construction of coal-dressing plants at the mining areas in order to ship out more washed coal and less unwashed coal is an important measure to reduce wasteful transportation.

In addition, the flow of coal and electricity in each other's direction, and the crossflows of industrial products for daily use are, strictly speaking, wasteful and irrational transportation which must be reduced or even eliminated.

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Chapter 9. Consumption and Preservation of China's Water Resources

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Summary: Water and human beings are closely related. The development of contemporary economy and the increase in population have not only greatly increased the consumption of water, but also contaminated it causing damage and loss of water resources. Proceeding from the perspective of environmental protection, this article will briefly analyze and introduce several problems in the course of China's exploitation and utilization of water resources, forecast the effects and consequences of China's future economic development on its water resources, and suggest certain measures to prevent the possible problems. [End of summary]

Fresh water is an important resource for human survival and economic development. Although 71 percent of the earth's surface is covered by seas and oceans, only 2.53 percent of its total water reserve is freshwater, and the freshwater in the rivers, lakes, and underground, with which human beings are closely related, accounts for only 0.007 percent of it. Along with the rapid development of industrial and agricultural production, and the increase in population, contamination of water bodies is also becoming increasingly serious. It is believed that in another 15 years, the consumption of freshwater will be about doubled. Now, 60 percent of the land area of the earth, or 63 countries and regions, are confronted with the problem of water shortage. Every year in the world, about 500 cubic km of industrial and domestic wastes are discharged into rivers and lakes, and millions of people have to drink polluted water. The soil and water bodies are polluted by insecticides and chemical fertilizers in many countries, which are also threatened by acid rain. Many rivers have been dammed and many lakes enclosed in land reclamation for cultivation, resulting in a reduction of water quantity and the capacity of self-purification. In some urban areas, excessive extraction of ground water has led to the subsidence of the land surface and the danger of sea water incursion. Many scholars believe that in the wake of the energy crisis, there will be a water crisis to confront mankind. How to exploit and control water resources and to prevent and treat water pollution effectively has become an important issue of common concern in today's world.

I. Consumption and Pollution of China's Water Resources

Since liberation, China's population has increased rapidly and an upsurge of large-scale exploitation of water resources has appeared all over the country. However, since the technology and equipment used in our industrial and agricultural production were fairly backward, and we lacked experience and proper administrative measures in work, water consumption in the country has increased very rapidly resulting in shortages in some, and serious waste in other, areas. Many rivers and lakes have been seriously polluted or damaged, causing inconvenience and losses in production and living standards.

A. Excessive Consumption of Freshwater, Serious Water Shortages in Many Areas

China's agricultural irrigation has developed a great deal since liberation, and the irrigated area has been expanded from 240 million mu in the early post-liberation period to 670 million mu. The proportion of irrigated area has also been raised from 16 percent to 45 percent. In the past 20 years, the amount of water used in agricultural irrigation has increased at the rate of 3.57 percent each year. China now ranks first in the world in size of irrigated area as well as in the speed of its growth.

Along with the urbanization after liberation, the use of water by the urban population and in industry has continued to increase. In the past 20 years, according to a typical survey, water consumption in China's cities has generally doubled. The continued rise of people's living standards in recent years has also led to an average increase of 3 to 5 percent in water consumption in city life every year. In 1980 alone, the quantity of tapwater supplied exceeded that of the previous year by more than 900 million tons. (In 1980, the quantity was 5.8 billion tons in the cities throughout China.)

According to statistics from a survey in 1978-1979, the amount of water used in China for industrial, agricultural, and domestic purposes totaled 476.7 billion tons, the second highest consumption in the world, only after the United States.

Because of the uneven temporal and spatial distribution of China's water resources, and the inadequate capacity of the existing waterworks for the transfer and storage of water, many areas are now having serious problems of water shortage in the development of their agriculture or animal husbandry. Of China's 1.5 billion mu of farmland at present, 830 million mu of arid land is still without irrigation facilities. In addition, 1.4 billion mu of grassland in China is short of water. Each year, an average of 300 million mu of farmland in the country is subject to drought, and the combat against drought has become a routine task for many provinces, cities, and regions. Because of severe water shortage and poor water quality, some 40 million people and 30 million head of cattle in the agricultural and herding areas of the northwest are having difficulty with their potable water. To solve this problem, huge manpower and material resources are expended in these areas in drawing and transporting water. In northern Shaanxi, northwestern Shanxi, southern Ningxia, and in the Dingxi and Longdong areas of Gansu, large convoys of trucks and tractors are being used to transport water over long distances. Thus, people have to exchange their gasoline and diesel oil for potable water, and each person can have a ration of 1.5 kg of water per day.

Many cities have had acute water shortages in recent years because of the concentration of population and industries, excessive water consumption, and the failure of waterworks to keep pace with these developments. According to a survey of 233 cities, 154 are experiencing water shortages in varying degrees, and the shortfall of water supply amounts to 8.8 million tons each day. The situation is most serious in Qingdao, Dalian, Tianjin, and Handan, where water is being supplied only at designated hours, in limited quantities, and at reduced pressure, causing inconvenience in people's daily life and a drop in production. In Tianjin, the city residents drank brackish water for 30 days in 1977, and the daily consumption per person was only 60 liters, only one-tenth of the average amount in cities of the United States. In Beijing, the daily water consumption is 145 liters per person, one-third of the amount in the capitals of developed countries. In Dalian in 1981, water shortages caused a loss of 600 billion yuan in industrial output value, and profits to be delivered were reduced by more than 100 million yuan.

B. Inefficient Business Management, Serious Waste in Water Use

In China, irrigation facilities for farmland lack supportive measures, since nothing has been done to prevent seepage in the ditches of most irrigation areas. Thus 40 to 50 percent, and 70 to 80 percent in some areas, of the water is lost through seepage. Most of the farmland uses the old flood-irrigation method, and water so used amounts to 1,000 cubic meters per mu each year, more than double the required amount. In industry, not much water is reused or recycled. In Shanghai, a more advanced city, the recycling rate is only 49 percent. In the arid, water-deficient north, the rate is generally only 20 to 30 percent. In the south, there is basically no water recycling at all. In foreign countries, the rate is about 70 percent. Because of our backward technical equipment and management, our water consumption per 10,000 yuan of output value is more than four times that of Japan and the FRG. In China, 60 tons of water is consumed in smelting 1 ton of steel, as against only 3 to 5 tons in foreign countries. For a thermopower plant with an installed capacity of 1 million kw, foreign countries use only 2.5 cubic meters per second, while China uses 40 to 50 cubic meters per second. For domestic consumption, many units adopted the system of a flat rate and people "drank from the same pot." Under this system, consumption is three to four times higher than if the fees are charged according to meter readings in individual households. Serious waste has occurred in many localities from leakage due to poor maintenance of pipes and other equipment in the absence of an efficient system and management. Excessive consumption not only aggravates the shortage, but also increases waste and intensifies pollution.

C. Water Pollution at the Sources, Serious Deterioration of Water Quality

According to incomplete statistics in a survey of 798 cities and towns in 10 drainage basin areas in China, the daily discharge of waste water and polluted water throughout the country in 1979 amounted to 78 million cubic meters, equivalent to 28.5 billion cubic meters a year, and this waste water went straight into the water zones before being basically treated. Of this amount, industrial wastes account for 81.2 percent and domestic wastes, 18.8 percent. In the same year, an assessment of the five toxic materials (phenol, cyanogen, arsenic, mercury, and chromium) in 53,000 km of the major rivers showed that in 18,600 km, 35.5 percent of the assessed length, the pollution was above the set standards, and in 12,600 kilometers, 23.3 percent of the length, the water was so seriously polluted as to be unfit for irrigation. In another 2,400-km section of the river, no more fish or shrimp can be seen because of the serious pollution.

The rivers that have been seriously polluted are the Songhua Jiang, the Second Songhua Jiang, the Mudan Jiang, the Tangwang He, the Hun He of the Liao He system, the middle and lower reaches of the Taizi He, the Hai He-Luan He drainage basin, the Nansihu of the Huai He, the Hongzehu, the Grand Canal in southern Jiangsu, and some sections of the rivers near Kunming.

According to the survey of cities and towns, Shanghai, Wuhan, Beijing, and 12 other cities discharged more than 1 million tons of waste water each day, while Shenyang, Anshan, Fushun, and 15 other cities discharged 500,000 to 1 million tons each day (see Table 1). The combined daily discharge in these 33 cities accounted for 54.5 percent of the total discharge of polluted water. Beijing, for example, discharged 2.61 million tons of polluted water each day, and only 8 percent of this amount had been treated with the simple grade-1 sediment method. Discharged along with the waste water each year were about 300 tons of chromium, arsenic, cadmium, nickel, and other toxic heavy metal, 200,000 tons of inorganic salt, and tens of thousands of tons of organic pollutants in addition to large amounts of germs and viruses.

Table 1. Daily Discharge of Waste Water in 33 Chinese Cities*

I. Cities discharging more than 1 million tons daily (15):

Shanghai	5 million	Xiangtan	1.16 million
Chongqing	2.6 "	Nanchang	1.1 "
Zigong	1.42 "	Beijing	2.61 "
Zhuzhou	1.22 "	Tianjin	1.45 "
Chengdu	1.12 "	Dalian	1.32 "
Wuhan	3.8 "	Jilin	1.16 "
Guangzhou	2.25 "	Lanzhou	1.08 "
Nanjing	1.38 "		

II. Cities discharging 500,000 to 1 million tons daily (18):

Shenyang	0.8 million	Guanghan	0.58 million
Benxi	0.68 "	Harbin	0.53 "
Huangshi	0.61 "	Xi'an	0.5 "
Taiyuan	0.59 "	Fushun	0.73 "
Deyang	0.55 "	Shijiazhuang	0.65 "
Maoming	0.52 "	Fuzhou	0.59 "
Anshan	0.76 "	Yong'an	0.57 "
Shangrao	0.66 "	Wuxi	0.52 "
Ganzhou	0.61 "	Dakou	0.5 "

*Source: Water Resources Research and Zoning Office, Ministry of Water Resources and Electric Power, "A Preliminary Assessment of China's Water Resources," pp 85-86.

In addition to the concentrated pollution caused by city sewage, there is also scattered pollution caused by extensive use of 666, DDT, and other organic fertilizers in China. According to statistics, China is now using more than 1.09 million tons of insecticides and more than 50 million tons of chemical fertilizers every year. Because of their low efficiency, many of the components are dissipated in the soil, water bodies, and atmosphere, causing a general increase in the toxic contents of agricultural crops and animal products. In fish, milk, grain, vegetables, and other foodstuffs, the proportion of 666 and DDT detected is quite high. Furthermore, the ground water has also been polluted. According to a survey on the ground water of 47 major cities, the ground water in 43 of them has been polluted in varying degrees; and in 18 northern cities relying on ground water as the main source of water supply, the ground water in 17 of them has already been polluted, seriously in 9 of them. Beijing, Xi'an, Shenyang, and 7 other cities were seriously affected while Nanjing, Shanghai, Wuhan, and 17 others were mildly affected. Because of the pollution, large areas of the water table in many localities have above-norm toxic contents, and the water in shallow wells is unfit for drinking. In Beijing, the area of polluted ground water with a general hardness that is above the state standard amounts to 208 square km, and the areas where the content of nitrite is above the state standard, amount to 200 square km. The areas with excessive phenol, chlorine, and organic phosphorus amount to 160, 120, and 30 square km, respectively, causing a marked deterioration of water quality in the cities and their suburbs.

Water pollution has not only brought serious losses in fishery, industrial, and agricultural production, but has spoiled the food, has affected our foreign trade exports, and has jeopardized people's health. China's catch of freshwater fish has dropped from 600,000 tons in the 1950's to 300,000 tons in the 1970's, and the output of many valuable marine products, such as crucian carp and Pacific salmon, has been reduced by a wide margin. Water pollution was one of the important causes. Throughout the country, water pollution has brought about the death of fish, poisoned humans and animals, and hindered industrial and agricultural growth. According to incomplete statistics, there were 571 such incidents in the 3 years from 1977 to 1979, and each year the losses in industrial production exceeded 10 billion yuan. Water pollution has also seriously affected the people's health. In recent years, the incidence of cancer of the liver, stomach, esophagus, and the digestive system has continued to increase. In areas with serious pollution, cases of enlarged liver, anemia, skin disease, premature gray hair, premature baldness, and deformed babies have markedly increased, and incidence of cancer is several or even more than 10 times that of other places.

D. Reduced Capacity of Rivers and Lakes, Lowering of Environmental Functions

Since liberation, China has built many reservoirs and river dams, and made great achievements in farmland water conservancy and water-energy exploitation. On the other hand, however, certain unsuitable policies and engineering projects have also had certain destructive effects on the hydrologic environment and the ecological balance.

China has many lakes. Because of the one-sided stress on agricultural development over a long period, many lakes were enclosed for land reclamation and turned into farmland. As a result, many small natural lakes have been dried up and thus disappeared from the earth's surface. Many large lakes of historical fame have shrunk, with their capacity reduced for the same reason. The 800-li Dongting Lake, well known at home and abroad, has had three-fifths of its area turned into farmland in 30 years, and its capacity was reduced by 11.5 billion cubic meters. Boyang Lake was reduced to half its original size in 20 years for the same reason, and its capacity was reduced by 6.7 billion cubic meters. Hubei, known as the "province with 1,000 lakes," had 1,066 lakes, large and small, in 1949; now, there are only 326 left and the water surface has been reduced by more than three-fourths. According to incomplete statistics, reclaiming land from the lakes for cultivation since liberation has reduced the lakes' water surface by more than 20 million mu, and the area of freshwater resources lost was about 35 billion mu, exceeding the normal annual runoff of the Huai He by 9 billion cubic meters. Reclamation in lakes not only weakens their ability to prevent flood and waterlogging by transferring and storing water, but also brings the loss of freshwater resources, reduces the capacity for self-purification through dilution, and lowers their environmental functions. As a result, the climate in the surrounding areas has become worse, the marine product resources and the ecological balance have been disrupted, and economic diversification in the lake areas was adversely affected, thus lowering the people's income and living standards.

At the same time, because of the reservoirs and dams built at the upper reaches of some rivers in certain areas, the water flow at the lower reaches was reduced or even cut off, and the rivers' power of self-purification by washing away or diluting the polluted water was weakened. Thus, the channels at the lower reaches became waste-water ditches and aggravated the pollution.

Furthermore, because of the increase in engineering projects and the number of opencut mines, or due to the indiscriminate felling of trees which caused soil erosion after liberation, more than 5 billion tons of soil have flowed into the rivers each year in the country. Thus, the amount of silt in the rivers increased, the quality of river water deteriorated, and some channels were silted. Many reservoirs built shortly after liberation were silted in the same way, and their capacity has been greatly reduced. Their functions in water conservancy and environmental improvement were impaired.

E. Subsidence of Land Surface and Hardening of Water Due to Excessive Extraction of Ground Water

Because of the shortage of surface water, many localities have turned to ground water. In 1972, after a severe drought, the water-deficient areas in northern China sank wells on a large scale for ground water. According to statistics, the number of motor-pumped wells sunk per 1,000 mu in the Hai He drainage was 8 in the plains, 10 in the hilly areas, and as many as 42 in some places. Because of these wells, the water table in Hebei is now in the shape of 30 funnels covering more than 10,000 square km. In Beijing, the amount of replenishment for ground water can only be 650 million cubic meters each year; however, the amount of ground water used has exceeded 900 million cubic meters each year. By now the total deficit has reached 1 billion cubic meters, and the water table has the shape of a funnel 1,000 square km in area.

Excessive drawing of ground water has brought about the subsidence of land surface in some cities, such as Tianjin, Beijing, and Xi'an. In Tianjin, the subsiding area has now extended to 2,300 square km, and the city center has subsided 800 mm (and as much as 1.8 meters in the worst spot). Beyond the Chaoyangmen of Beijing, the land subsidence in 1966 was only 2 mm. It increased to 26 mm in 1970 and 100 mm in 1975. In Xi'an, the land surface subsided at an average rate of 4 mm a year in the 1959-1972 period. In 1977 and 1978, it reached 20 mm.

Excessive use of ground water has also caused the uneven depressions on the land surface where waste water has been collected to form pools. The seepage of this waste water can only hasten ground water pollution. In Cangzhou and some other localities, the depressions formed as a result of excessive extraction of ground water have caused the withering of trees. In Beijing and many other northern cities, because of the continued lowering of the water table every year, the pollution, the hardening of ground water, and the increase in nitrite content, the quality of water supplied to the cities has markedly deteriorated, and each year, the factories have to increase their expenditures in clearing away residue. These expenses and losses from the interruption of their business have continued to increase.

II. Development of China's Water Resources and Forecast

A. Forecast of China's Total Water Consumption--Future Water Supply to the "Three Norths" Expected To Be Tight

According to the statistics of a survey in 1978 and 1979, China's total water consumption for industrial, agricultural, and domestic purposes was 476.7 billion cubic meters. The total consumption forecast for 2000 is based on the rate of increase in consumption in each of the water conservancy departments and units concerned in various provinces and cities, each of them submitting one liberal and one conservative estimate, all to be consolidated into a national forecast. According to this forecast, China's total water consumption in 2000 for industrial, agricultural, and domestic purposes will be 620 to 730 billion cubic meters, an increase of 30 to 53 percent over the present amount.

Based on the total freshwater resources of 2.7 trillion cubic meters and provided that the total consumption in 2000 as forecast will amount to about 23 to 27 percent of this total, then in the country as a whole, there should be sufficient water resources in China for its requirements in 2000. However, China's water resources are very unevenly distributed in terms of time and location, and the rainfall varies very greatly in the north and the south, in the rainy and the dry seasons, and in the wet and the dry years, and the distribution of freshwater resources and farmland, and supply and demand also varies greatly in different parts of the country. Therefore, because of the great differences in demand, the extent of water shortage in different areas will also be different. According to the consolidated forecast of various provinces and cities, the whole country in 2000 will be 70 to 100 billion cubic meters short. The farmland in the valleys of the Huang He, the Huai He, the Hai He, and the Luan He combined, and the Liao He--the valleys where population is denser--will be the first to experience the shortage, and the next in line will be the arid areas and the plateaus of the northwest. Unless effective measures are taken, the former will share 70 percent, and the latter, 30 percent of the national shortage. That is why water supply in northern, northeastern, and northwestern China will continue to be tight.

B. Forecast of Nationwide Water Pollution--Continued Aggravation

According to the trend of water pollution in China, the amount of industrial and domestic wastes will continue to increase in the next 20 years along with economic development and population growth. The result of forecasts of the total volume of polluted water in the country may be obtained in the following ways:

1. Trend Projection Method

This is a rough estimate based on the actual average increase rates over many years in China.

According to incomplete statistics by the former Environmental Protection Office of the State Council, the daily volume of polluted water discharged in the early 1970's was 40 million tons, which was increased to 50 million tons in 1978, 78 million tons in 1979, and 85.75 million tons in 1980. With these as base figures, we can work out an average increase rate of 7.9 percent, and arrive at a total amount of 142.8 billion tons in 2000 (see Table 2). This is close to the 150 billion tons of the United States in 1979.

Table 2. Forecast on Volume of Polluted Water in China

Year	Daily discharge of polluted water	Yearly discharge of polluted water	Remarks
1970	40 million tons	14.6 billion tons	Estimated amount
1978	50 " "	18.3 " "	Estimated amount
1979	78 " "	28.5 " "	Actual amount
1980	85.75 " "	31.3 " "	Actual amount
1985	125 " "	45.6 " "	Forecast amount
1990	183 " "	66.8 " "	Forecast amount
1995	267 " "	97.7 " "	Forecast amount
2000	391 " "	142.8 " "	Forecast amount

2. Estimate Based on Output Value

According to the data of several foreign countries, the volume of polluted water increases 6 to 20 million tons for each increase of every $100 million in the total output value of the national economy. If China's per capita output value in 1980 was $290, and the population was 1 billion, the total output value would be $290 billion, and the annual volume of polluted water would be 31.3 billion tons. Then in 2000, when the per capita output value will be $916 and the population will be 1.2 billion, the total output value will be $1,099,200,000,000, an increase of $890.2 billion over the present amount. In view of our backward technical equipment and poor management, let us suppose that for each increase in output value of $100 million, the increase in polluted water is 10,000 million tons. Then the total volume of polluted water will be 112.2 billion tons in 2000.

3. Simple Estimation

It is generally believed that along with social and economic developments, the volume of polluted water will at least double in 10 years. Based on a volume of 31.3 billion tons in 1980, it will be 62.6 billion tons in 1990 and about 125.2 billion tons in 2000.

4. System Dynamics

According to a preliminary estimate with the aid of a macroeconomic model of water resource environments based on a continuous system simulation, China's total volume of polluted water in 2000 will be about 90 billion tons.

From these forecasts, we can see that because so many rivers, lakes, and reservoirs in China have been polluted and 90 percent of the polluted water is being directly discharged into the water zones before being treated in any way, it would be absolutely impossible for the northern regions of China, where rainfall is scarce, to rely on natural water, especially during the dry seasons, as a means of diluting or purifying the pollution. Thus, with the continued production of new polluted water before the old polluted water already discharged can be treated, the pollution will continue to aggravate, resulting in a vicious circle of both new and old pollution. Water pollution will in turn reduce the resources of useful water and aggravate the water shortage. Then the supply of water for drinking and other purposes in the drainage basins of the Huang He, the Huai He, the Hai He, the Luan He, and the Liao He, where the shortage of water has always been serious because of the concentration of industries and population, will be even more difficult.

In the water-abundant areas south of the Chang Jiang, water quality is on the average good, since the volume of runoff in this river is large. However, in the vicinity of some large cities, such as Shanghai, Nanjing, Wuhan, and Chongqing, where the daily discharge of polluted water is more than 1 million tons, some distinctly polluted zones have appeared along the river bank. If timely precautions are not taken, the quality of water along the entire valley may degenerate because of pollution and affect water consumption.

In the Zhu Jiang, pollution is now still mild. However, in the river delta area, the effects of pollution from industrial and domestic wastes from hundreds of factories and from the households in Guangzhou have forced eight municipal waterworks to relocate in view of the degenerating water quality. In the future, along with the development of the Special Economic Zone and the rapid development of light, textile, and electronic industries in the vicinities, it can be predicted that water pollution in Shenzhen area will become increasingly serious.

C. Polluted Areas Expected To Expand

To maintain an increase in grain output, the amounts of insecticides and chemical fertilizers will continue to increase, thus increasing organic phosphorus, nitrite, and nitrate in the water and soil. At present, the amount of industrial residue, city garbage, and tailings throughout the country exceeds 200 million tons every year, and these solid wastes are continuing to accumulate. Exposed to wind and rain, they have become a source of pollution. Because of economic diversification in the countryside, in particular, it is inevitable that some enterprises run by communes and brigades may cause fairly serious pollution. At the same time, in many large and medium-size cities, some plants causing serious pollution may be moved into the rural or mountainous areas. Thus, the polluted areas will continue to expand, and the pollution, originally concentrated in certain points in the cities, will become widespread in whole areas throughout the country, and the hazard will be more serious.

Furthermore, in the past several years, acid rain was discovered in the southwestern, eastern, and southern regions of China. If timely measures are not taken, then, along with the economic development and the increased use of mineral fuel, China will have frequent acid rain, just as some European and American countries are now having. There will be many acid rivers and acid lakes in the country and our agriculture and fishery will be seriously jeopardized.

D. Continue Aggravation of Ground Water Pollution

In China, most of the ground water and the surface water are mutually supplementary. Therefore, the intensified pollution of surface water will affect the ground water more extensively and quickly. Reservoirs have been built for the collection and treatment of polluted water. However, if the polluted water is used for irrigation before being treated, the toxic substance on the land surface will go underground along with the replenishment of ground water, or by seeping through the soil. The ground water is thus more seriously polluted.

Because of the different geographic conditions and the characteristics of ground water in its movement, it is more difficult to determine whether ground water has been polluted. When the signs of pollution are discovered, the pollution will already be fairly serious, and restoration of its purity will be difficult. Even though the source of pollution is removed immediately upon the discovery of pollution, the pollution will still remain for many years. For this reason, the problem of ground water pollution will be more complicated and serious because of the alternation of new and old pollutants and their accumulation.

III. Suggestions and Measures for the Preservation of China's Water Resources

A. Establish and Strengthen a Unified Administrative Organ Over the Quality and Quantity of Water in All Drainage Basins in the Country

Water resources constitute one of the important social issues concerning the national economy and the people's livelihood. The problem of water has a bearing on not only production, but also the stability of people's livelihood. Since water has the characteristic of mobility over huge areas and regions, it is often beyond the capability of a single unit or department, or a single province or region to solve the water problem independently. It must be under the unified administration of one organ. In China, there is as yet no organ of this kind. In various regions, water resources are controlled by the geological, water conservancy, and city construction departments separately, while the factories and the people in rural areas are free to sink wells for water. At the same time, in the absence of a unified national program for the utilization and preservation of water resources, there are in many localities competitions between industry and agriculture, between production and domestic use, between different departments, and better different areas, for water. In addition, there are also instances of blind exploitation, willful destruction, discharging wastes indiscriminately, and the waste and pollution of water resources. Therefore, there is an urgent need for a duly authorized state organ to be formed directly under the central authorities, together with corresponding organs in the drainage basins, to be responsible for the overall administration, organization, and coordination of the work of exploiting, utilizing, controlling, and preserving water resources; for working out strict rules and long-range plans of management; and for conducting comprehensive, systematic, and long-term scientific research.

At the same time, full use should be made of such mass media as newspapers and journals, television and radio broadcasting to step up the work of publicity and education in the issue of water resources, so that the importance of water resources will be viewed in the same light as that of food and energy. All the people should be mobilized in the work of opening more water sources, curtailing water consumption and preventing its pollution.

B. Study, Popularize the Scientific Use of Water and the Technology of Water Conservation

We should publicize and educate people on the significance of water conservation on a nationwide basis, commend the exemplary units in water conservation, introduce the knowledge of water conservation, popularize the required measures, and advance such slogans as "Increase Output Without Increasing Water Consumption" and "Strive for Development Through Water Conservation." At the same time, we should explore and develop the scientific use of water and the technology of water conservation, and pay particular attention to the research and popularization of the technology of water conservation in agricultural irrigation and of water-cooling in industry. Great efforts must be made in water recycling on a larger scale for industrial use, in adopting water-conservation techniques and in reducing water consumption. A quota system should be introduced in water supply, and above-quota consumption should be should be subjected to higher charges. The flat-rate system must be abolished. The factor of water resources must be considered in planning for agricultural and industrial production and in urban development. Industries that require heavy water consumption and agricultural crops that require more watering should be set up and planted in areas without water shortages, and the urban population should be appropriately controlled to avoid overconcentration. For agricultural irrigation, the methods of water conservation are: reduction of seepage from fields and ditches; the zero tillage method and the use of plastic sheets and straw to reduce the evaporation of surface moisture; adoption of such advanced technology as trickle irrigation, spray irrigation, and percolation irrigation.

In industry, the main way is to raise the utilization rate of recycled water, to reuse the water for cooling, and to popularize the method of using polluted water or salt water for cooling.

To reduce domestic consumption, the main way is to abolish the flat-rate system and to install water meters in all households so that the water charges are based on volume of consumption. Water-saving laundry machines, water-saving faucets, foot-control showerheads, and other water-saving devices should be trial manufactured and popularized, while the work of maintenance, rush repairs, leakage checks, and leakage prevention should be strengthened.

C. Form the Quality-Quantity Unity Concept, Attach Great Importance to the Work of Water-Quality Preservation

Human survival and economic development requires a certain amount of water which must be clean and wholesome. Therefore, water quality and water quantity are two inseparable aspects of water resources. Attention must be paid to both aspects in the proper preservation of water resources. In the past, however, the publicity work was mainly concerned with the quantity of water required, and people were led to believe that the preservation of water quality was only the job of the waterworks and the environmental protection departments. In actual work, many units have often taken advantage of the free supply, or supply at very low price, of water resources, and carried out production which required heavy water consumption. The result was a great waste and the increased discharge of waste water which added to the burden of pollution treatment. The pollution of water in turn reduced the amount of water that is fit for use, and further intensified the water shortage. Therefore, we must instill in people's minds the concept of quality-quantity unity. In taking a long-range view or in consideration of the present inadequacy of the state's financial resources, we must stress the importance of preserving the quality of water in our publicity work so that everyone will understand that reduced water consumption is itself the preservation of water quality and the preservation of water quality will mean an increase in water supply according to the dialectical relationship. Then, in coordination with the reorganization and technical transformation of enterprises, the work of reducing the consumption of water and the discharge of polluted water will be carried out in the supply, use, and drainage of water on a nationwide basis and as an administrative, economic, and legal measure. There will also be a unified plan and unified administration over the entire system of water resources with respect to both quality and quantity.

D. Adopt Practical and Effective Measures To Treat Pollution

Since industrial wastes account for 81.2 percent of the total amount of polluted water in China, and polluted water containing toxins and other harmful substances comes from the factories and enterprises, we should in the future focus the work of polluted-water treatment on industry.

In the treatment of industrial wastes, China should, as a matter of principle, unequivocally give priority to technical renovation, technical transformation, management improvement, and comprehensive recovery and utilization. First, efforts must be made to minimize waste and polluted matter in the process of production, and then proceed with the purification of already attenuated waste. In this way, we will not be landed in a passive position in the entire process of prevention and treatment.

In actual work, we may begin with both management and technology and then adopt the following measures:

1. Set Up a Sound Administrative Organ, Vigorously Strengthen Enterprise Management

In addition to setting up and strengthening an administrative organ to take overall charge of water-quality control in all drainage basins throughout the country, as mentioned earlier, we must also energetically step up the work of environmental management among enterprises so that enterprises may perfect their economic responsibility system and include the work of environmental protection in their plans of business operation and management. This work will then become part of enterprise management. We must also set up and perfect a set of rules and regulations for environmental protection in enterprises, and the responsibility for environmental protection should be shared by all sections, workshops, workshifts, and teams and at all workposts. Equipment control should be strengthened to keep the equipment in good operating order and to reduce waste water or waste liquid through leakage.

2. Formulate Specific, Detailed Water Laws

Large-scale modern economic construction cannot proceed regularly without regulation by elaborate laws. For the prevention and treatment of water pollution, we must have the backing of an elaborate set of water laws. In 1979, China proclaimed its first environmental-protection law. This is only a basic law and it is still necessary to formulate a more specific and detailed set of laws concerning the prevention and treatment of polluted water for all the drainage basins according to national and actual local conditions.

3. Adopt the System of Water Charges To Reduce Water Consumption

At the present stage of technical development, the consumption of water is in direct proportion to the discharge of waste water. The free use of water which leads to great waste and increases the discharge of polluted water must be terminated. The use of water must be strictly controlled in all factories, rural areas, government offices, and civilian households, and economic means must be used so that above-quota consumption will be subject to extra charges. The reduction of water consumption must be regarded as an important means of pollution prevention and treatment.

4. Strictly Control the Source of Pollution To Reduce Effluents

Besides strictly enforcing the regulations stipulated in the pollutant-discharge permit and demanding compliance with the set standards, we should control and treat industrial wastes differently. Those containing heavy metal and organic matter, for which degradation is difficult, must be treated within the workshop or the factory, and must not be discharged into water bodies in excessive quantities. The offenders must be fined, instructed to carry out treatment within certain time limits, or ordered to close their factories, while the recalcitrants must be dealt with administratively or even legally. The factories should be encouraged and supported in the adoption of pollution-free technology, closed systems, and the recycling of water, and in the multiple uses of water and the reuse of waste water so as to reduce or eliminate the discharge of effluents.

5. Improve the Sewage System, Build Sewage Treatment Plants

Since the sewage in China's 33 large and medium-size cities accounts for 54.5 percent of the total national volume, solution of the pollution problem in these cities is an important and urgent task. In the past several years, some foreign countries have achieved notable success through the construction of urban sewage systems and sewage treatment plants. In the large and medium-size cities of China, however, most streets and districts are without sewage pipes. (Even in Beijing, less than 40 percent of the population is served by a sewage system.) Very few households have sewage systems and people simply dump their wastes and trash in the rainwater drains. Domestic and industrial wastes flow freely over the ground or into the open gutters where they mix and become a source of serious pollution. The urban sewage treatment plants in China are far behind their foreign counterparts, considering their number and the facilities at their disposal. Since the state is rather weak in economic resources, the first step we should take to solve the urban sewage problem is to improve the sewage system by constructing a network of sewage pipes. The second step is to set up and popularize facilities for primary sewage treatment. If circumstances permit, we should strive to increase such facilities so that in 1990, they will be accessible to 40 percent of the country, and to the whole country in 2000.

6. Strengthen the Monitoring and Supervision of Water Quality

Water-quality monitoring is like the ears and eyes of the pollution-control system. We must quickly establish and strengthen a unified national monitoring organ together with uniform standards, set up a system of monitoring, inspection, and supervision at various levels, and improve monitoring technology and equipment. In the public water zones, we should also set up complete monitoring systems and through periodical supervision, automatic supervision, and mobile supervision, exercise strict supervision and control over pollution.

7. Pay Great Attention to Technical Transformation, Technical Reform, Equipment Renovation

Technical reform and technical transformation are radical measures to raise the utilization rate of resources and energy, and to prevent pollution. In the course of technical transformation, we should strive to raise efficiency, conserve water, and reduce the discharge of pollutants in many different ways, such as setting rational raw material consumption quotas, using those materials that are nontoxic or low in toxins instead of toxic materials, adopting those production techniques that are nonpolluting or less polluting, updating equipment that may cause heavy pollution, stepping up the work of equipment maintenance and upkeep, and establishing operational procedures for strict compliance. We should also encourage enterprises to carry out comprehensive utilization, to recover, process, and utilize the "three wastes" in order to turn harm into benefit and waste into treasure.

8. Develop Overall Planning, Comprehensive Prevention and Treatment on a Regional Basis

Water pollution has the characteristics of being widespread and becoming a social issue. Not much good can be done if only scattered and small-scale strategic measures are adopted in a localized, piecemeal approach. According to foreign experiences, only comprehensive strategic measures for overall regional planning and general prevention and treatment may attain the goal with maximum economic benefits. Therefore, we may first direct our attention to the water system and then, on the basis of a full investigation into the existing sources of pollution, consider comprehensively such factors as regional planning, resource utilization, energy transformation, purification of harmful substances and their capacity for self-purification, and so forth. Finally, we may apply the theories and methods of systems engineering to conduct comprehensive and systematic analyses and modern simulations on the hydrologic environment. Later, we will be able to work out the best possible plan for implementation in pollution prevention and treatment in the cities, factories, mines, and agricultural irrigation areas within each water zone.

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Chapter 10. Exploration of Certain Problems in China's Economic Development

by Cheng Hongmo [4456 1347 6206]

Summary: Based on the history of China's economic development, this article will discuss certain problems which are obstacles to the attainment of the strategic objective, such as backward management, inferior technical equipment, poor labor quality, and the resultant serious waste and financial difficulties. The solution of these problems will be largely determined by the speed of development during the next four 5-year plans, while the improvement of labor quality and the cultivation of various talents that are qualitatively and quantitatively adequate for the national economic development will be the key factor in the sustained improvement of management and the full utilization of technical equipment. If all these problems can be solved satisfactorily, we will be able to attain the strategic objective of quadrupling the GVIAO, which will reach or slightly exceed 2.8 trillion yuan in 2000. Finally, the article will suggest certain measures in dealing with these problems. [End of summary]

China's strategic objectives in economic construction were laid down by the 12th CPC Congress. The objective is that "between 1981 and the end of this century, while steadily working for more and better economic results, we will quadruple the GVIAO--from 710 billion yuan in 1980 to 2.8 trillion yuan or so in 2000."

There are many favorable conditions for attaining this grand strategic objective. First, this strategic objective has already had the wholehearted support of people throughout the country--people who are determined to struggle for this objective. Second, since the founding of the People's Republic, we have had the positive experience of an average annual growth rate of more than 10 percent during the First 5-Year Plan as well as the negative experience of a drop from +30 percent to -30 percent in economic development during the 2 following years. If we conscientiously review our experiences, both positive and negative, we will not have to take too many detours in our future work. Third, we have made important achievements in national economic construction in the past 30 years. In 1980, GVIAO was 14-fold (and GVIO 35-fold) that of 1949, and 8-fold (14-fold) that of 1952. The per capita GVIAO increasd from 156.74 yuan in 1952 to 728.61 yuan, nearly a five-fold increase. The productive capacity for coal, steel, petroleum, electricity, and communications and transportation was increased by a range of from several to tens of times. We have established such new industrial branches as aviation, motor vehicles, and electronics, and trained more than 9 million professional personnel with intermediate specialized education so as to provide certain material and technical foundations for the further development of socialist construction. Finally, we have abundant resources in manpower.

However, there are still serious problems in our economic construction. For example, economic results are not satisfactory, waste is very serious, and high accumulation and high speed have not brought many real benefits for the people. What are the causes of this deplorable situation. What are the problems that still exist: These questions deserve our careful study and research.

I. Existing Problems

A. Low Management Standards

A low standard of management in the national economy, that is, the macroeconomy, is the important cause of poor economic results and the disproportion among different economic sectors, as shown in the following:

1. Inadequate Scientific Planning

China's national economy has suffered serious losses because of the lack of meticulous planning. For example, the railway built to serve the exploitation of lignite in the Huolin He and the Yimin He mining areas was completed before the scope of production and the plans of exploitation for these two mines were finalized. As a result, an investment of 500 to 600 million yuan was tied down. Furthermore, before the construction plan was determined in 1976, a large construction team already moved into the Huolin He mining area and passed their time in idleness. Many materials were also moved in and because of the lack of proper care, large losses were incurred. In Sichuan, natural gas had to be used as part of the raw materials for a vinyl mill whose equipment was imported from Japan. The investment totaled 700 to 800 million yuan. Although the construction of the mill was completed, there was not enough natural gas and arrangements had to be made for it to be supplied from Chongqing Iron and Steel Plant to keep the mill operating at half capacity. In Pingdingshan, Henan, a cord fabric mill was built, its equipment also imported from Japan. The investment was nearly 1 billion yuan and the annual output was to be 13,000 tons. However, its products could hardly be sold. What people worry about now is that such phenomena have not been eliminated. According to a survey on 560 large and medium-size projects and single-item projects completed in the 1979-1981 period, only 69 percent, or 384 projects, can produce regular economic results, while the remaining 31 percent, or 176 projects, are still unable to do so because of the lack of meticulous planning, full preparation, or comprehensive balancing. Of these projects, 23 were handicapped by inadequate prospecting and design. Among 91 others, some were unable to operate because of unsynchronized construction and uncoordinated capacity; others did not have enough production because their products could not be easily sold; and still others were forced to suspend their operation, to switch over to other product lines, or to operate on a limited scale because the plants did not receive many orders and their goods were stockpiled. Another 41 of them were unable to operate at full capacity because of shortages of raw materials and fuel, while the remaining 21 are operating with backward technology, substandard equipment, and poor engineering quality.

2. Use Value of Products Overlooked

The proportionate coordination among different sectors of the national economy mainly refers to coordination in use value. If there is coordination in value and not in use value, there may still be huge overstocking, on the one hand,

and serious shortage of products, on the other, resulting in a disproportionate relationship even though all sectors have fulfilled their output value quotas. In China, there is a serious shortage of steel output, on the one hand, and, on the other, huge stockpiles of goods both in short and in excessive supply. In 1978, the yearend stock of steel material was 15 million tons. In 1981, it had increased to more than 20 million tons, more than half of the annual steel output, and the stock increased faster than the output. There were also large stockpiles of mechanical and electrical products, totaling tens of billion yuan in value. About 5 to 10 percent of these products had to be discarded, while another 40 percent that were barely fit for use, had to be sold at cut prices. The goods in stock of one agricultural service company alone amounted to about 6.3 billion yuan in value. After being rebuilt, repaired, disassembled, and downgraded in prices, fewer than one-third of them could be disposed of. This was the outcome of being concerned with output value alone and overlooking use value. In 1981, the total amount of commodities in stock for the state sector of commerce increased 26 percent over 1980 because of poor market demand and other causes. The increase in stock was 21 percent higher than the increase in the national income of the same year.

Serious overstocking has led to the tying down of excessive funds. Among the state-owned industrial enterprises in China, the amount of circulating funds per 100 yuan of output value was 19.4 yuan in 1957. In 1976, it rose to 36.9 yuan, nearly double. At the end of 1978, the circulating funds used by the state-owned enterprises throughout the country reached 290 billion yuan, although the national income in the same year did not exceed 300 billion yuan. This situation remained unchanged in 1981.

3. Dispersed Operations Being Performed by Ignoring State Plans

According to incomplete statistics on 21 provinces, municipalities, and autonomous regions at the end of 1980, there were as many as 1,710 lacquer plants not included in the state plans. In addition, there were tobacco factories, wineries, bicycle factories, and so forth, not included in state plans. In Henan Province alone, there were more than 100 small tobacco factories. Since the production of bicycles is highly profitable, the productive capacity was blindly expanded, resulting in seriously duplicated production. In the provinces of Jiangsu and Zhejiang and the city of Shanghai alone, there were more than 300 factories producing bicycles and their spare parts, and only 63 of them had been designated by the state. The actual productive capacity for bicycles was 9 million units over the state plan figure. As a result, nonbrandname bicycles were seriously overstocked while brandname bicycles were short of the demand.

Most enterprises not included in state plans use obsolete equipment and backward technology. Their technical strength is weak, their management standards are low, their waste of raw materials and energy is serious, and the quality of their products is mostly inferior. To compete with the large plants for raw materials and for the market, they do not hesitate to resort to any possible tactic, even bribery, at the risk of disrupting the national economy. Thus, the large plants had to operate undercapacity, while the small ones that are not included in the state plans expand their productive capacity blindly, causing the continued increase in capital construction investment. In 1980, capital construction investment in the country rose to 53.9 billion yuan. In 1982, the state's capital construction investment was only 38 billion yuan, but unplanned investment continued to increase. Although planned investment was later increased to 44.5 billion yuan, unplanned investment still could not be controlled, and it finally reached 52.5 billion yuan, 38 percent higher than the originally planned figure. As a result, the capital construction periods were prolonged, and the pressure on energy, raw materials, and transportation facilities was intensifed. The construction period during the First 5-Year Plan, for example, was 5 years; now, it is prolonged to 8 to 10 years, and even more than 13 years for large and medium-size projects. Every year of prolonged construction in the country means a loss of 10 billion yuan, wages alone amounting to 5 billion yuan. The loss to the entire national economy on this score is incalculable.

4. Backwardness Protected by Price Policy

Since the disproportionate relationship between light and heavy industries has not yet been set right, the supply of many consumer goods is now short of demand, and consequently, higher profits for certain commodities can be permitted. However, the pricing of many commodities is often stipulated by administrative measures as it was many years ago. Some prices, such as those of coal as energy, many raw and semifinished materials, electronic elements and parts, accessories and spare parts of machines, and so forth, are too low. On the other hand, the prices of many products are formed by adding a certain percentage of profit to the highest production cost of the same type of products. As long as these products are produced and procured, there are bound to be profits. This method of pricing is responsible for the rush to produce such hot items as radios, TV sets, cassette recorders, wristwatches, bicycles, electric fans, and other durable consumer goods. Thus, more than 40 factories for laundry machines have been established in one province. The quality of products in many of these factories is poor and these products cannot be easily sold on the market. Since the commercial departments will procure these products, however, the backward factories can relax their efforts to improve the quality of products or the management of their business.

B. Poor Technical Equipment

At present, the total value of fixed assets in all the economic sectors of China is about 650 billion yuan, of which about 300 billion yuan has been spent on equipment. The common problems are as follows:

1. Obsolete Equipment, Backward Technology

Throughout the country, there are 2.87 million sets of machine tools of various types. Of this number, 90,000 sets were left over before liberation, 100,000 sets were imported over the years, 350,000 sets were produced during the Great Leap Forward, and more than 1 million sets were produced during the 10 years of turmoil. Only 900,000 to 1 million sets were produced according to the regular procedures of technology and the norms of technical quality, and most of them have been used for a very long time. In the coal industry, a fairly large portion of the equipment has been used for more than 30 years, and the oldest has lasted 60 years. In the electric power industry, one-third of the thermopower units (based on capacity) have been in service for more than 20 years, and the oldest unit has lasted 60 years. The situation is even more serious in the light industrial system. There are now about 2,500 types of special equipment for light industry, and most were produced in the 1940's and 1950's. Among them, 900 types are in urgent need of improvement, and another 600 types should be eliminated immediately. The shortage of equipment is also serious. In the case of instruments and meters, for example, there are more than 300 types in Switzerland, 230 types in the Soviet Union, and 180 types in Japan, while in China, there are only 86 types. In the wristwatch trade in Shanghai, there are 354 sets of automatic machine tools, of which 106 sets have been used for about 30 years. One-third of the spare parts produced by them need to be refinished. In the papermaking factories of Shanghai, some equipment manufactured in 1903 is still in operation.

In designing new products, we do not carefully assimilate the advanced sciences and technologies. Instead, we often mechanically copy from the old products of foreign countries, and that is why our "new" products, at the time of their appearance on the market, are already out-of-date. China now has more than 20,000 varieties of mechanical and electrical products, and 60 percent of them are in urgent need of renovation or due for elimination because of their backward performance. Their technical performance is approximately up to the 1950's level. For this reason, some factories, though built in the 1970's or the 1980's, are still using equipment of the 1950's or 1960's according to their technical and economic standards.

2. Poor Economic Results, Serious Waste of Resources

The equipment conditions already mentioned and poor management have brought about the continued deterioration of economic results. For example, the industrial output value for each yuan of fixed assets was 2.88 yuan in 1957, 1.78 yuan in 1970, and only 1.2 yuan in 1980, while it is generally 3 to 5 yuan, or even higher in the industrially developed countries. In 1970, in Japan's machine-tool industry, each yen of fixed asset created an output value of 5.5 yen, whereas in China, the output value per yuan of fixed asset was only 1.3 yuan.

Now let us compare per capita productivity in the same trade. In the machine-tool trade, China has 420,000 workers and produces an annual output value of 2.27 billion yuan, equivalent to about $810.71 million, with per capita productivity of $1,937.27. The United States has 80,000 workers with an annual output value of $2.2 billion and per capita productivity of $27,500, 14 times that of China. In the FRG, there are 97,000 workers with an annual output value of $2.3 billion and a per capita productivity of $23,711, 12 times that of China. In Japan, there are 33,000 workers with an annual output value of $1.77 billion and a per capita productivity of $53,636, 27 times that of China.

In the Soviet Union, there are 200,000 workers with an annual output value of $2 billion and a per capita productivity of $10,000, 5.18 times that of China.

The waste of resources, particularly energy resources, is also appalling. In the cement industry, for example, China mainly uses the wet, or semiwet method of production, and the energy consumption is more than double the amount required in the use of advanced rotary kilns with precalcinators. In China's oil-refining industry, the refining of each ton of crude oil consumes 900,000 calories of energy, 40 to 60 percent higher than in the United States and Japan. In coking, the wet method is still used in China for putting out the flame, and each year, more than 1 million tons of standard coal is lost by key enterprises alone. In the electric-power industry, most of the boilers use condenser units of medium-low voltage. Compared with the use of advanced high-voltage units of 200,000 kw, coal consumption is higher by nearly 20 million tons. Now let us look at the energy consumption per $100 million of national income. China's consumption is 325,000 tons of standard coal, while it is only 121,000 tons in the United States, 55,000 tons in Japan, 65,000 tons in the FRG, 106,000 tons in England, and 57,000 tons in France. China's consumption is 3 to 6 times theirs.

3. Lack of Competitive Power in the International Market

Along with the development of foreign trade and the increase in international economic contacts, the prices of many Chinese products should be commensurate with world market prices, otherwise, we will not be able to gain any advantage in international competition. Low wages alone cannot be any real advantage for China in the competition. In the fur industry, for example, China can sell generally low-grade products, and only a few medium-grade products on the international market. A foreign-made rabbit-fur short overcoat, after dyeing and processing, can sell for 2,000-3,000 yuan in RMB, while ours sells for only 220 in exports, a difference of 10 to 15 times. Again, the average wage of China's machinery workers is about one-twentieth that of Japan, but its per capita productivity is only one-tenth of Japan's. Thus a large portion of its advantage is offset by its disadvantage so that, finally, China's advantage over Japan is only two times in terms of labor cost. If we compare production cost, then China has no advantage whatsoever. If China's industrial products, particularly its mechanical and electrical products, have to enter the international market, its reliance on cheap labor alone cannot be practical. Poor technical equipment is an important reason for poor quality and an insufficient degree of processing of products.

C. Poor Labor Quality

The development of science and technology and of productive forces is making increasingly higher demands on the personnel engaged in production and management. Without certain scientific, technical, and cultural standards, there will be difficulty for labor to be matched with the modern means of production or to be gainfully employed. Then the national economy and enterprise management cannot be improved, labor productivity cannot be raised, and problems of injury in line of duty, technical accidents, and serious waste cannot be satisfactorily solved.

China has a 560-million-strong labor force which accounted for 56 percent of the total population in 1981. However, the labor quality is poor. According to nationwide cultural standards, among every 10,000 persons, only 599 are of university level, 6,622 of senior middle school, 17,758 of junior middle school, and 35,377 of elementary school level. Those of university level account for less than 1 percent of the total population, while illiterates and semiliterates account for 23.5 percent. The number of students enrolled in universities per 10,000 persons is only 12.8 in China, but 427 in the United States, 172 in Japan, 98 in Brazil, 52.4 in India, 31.3 in Thailand, and 24.5 in Bangladesh. In this respect, China does not even compare favorably with Bangladesh.

Let us look at the cultural levels of those already employed. Of all the workers in China at present, illiterates account for 5 to 7 percent, while those below junior middle school level account for 70 to 80 percent. According to a survey of 20 million workers in 26 provinces, cities, and autonomous regions, only 15.9 percent are of senior middle and specialized secondary school level, and 64 percent cannot measure up to this level; and only 3.1 pecent are of specialized university level. The cultural levels of China's workers are even below those of Japanese peasants. Among Japanese peasants, 19.4 percent are of junior middle school level, 74.8 percent are of senior middle, and 5.8 percent are of university level.

According to a survey of 16.45 million workers in 23 provinces, cities, and autonomous regions, most, or 71 percent, belong to technical grades 1 to 3; 23 percent are of grades 4 to 6; and only 2 percent, of grades 7 and 8. Most of them were old workers of low cultural level and had difficulty in grasping advanced technology. Furthermore, from the standpoint of historical development, we can see the marked tendency of synchronized drops in average technical grade of workers and economic results. In the 1950's, for example, the technical grade of workers in the light industry sector was generally about 4.5. In 1981, it dropped to 2.9, and the number of grade-1 workers accounted for 70 percent. In some enterprises, fairly large numbers of foremen were grade-1 workers who had not received systematic training. This situation is inconsistent with the demands of modernized industrial production.

The situation on the agricultural front is even worse. In the rural areas, 30 percent of the young and middle-age people are illiterate or semiliterate, and only 40 percent of them are of elementary school level. There are now 17 million farm-machine operators throughout China, and two-thirds of them are unqualified for their jobs. The number of agrotechnicians accounts for only 0.05 percent of the agricultural labor force.

Now, let us look at the proportion of scientific and technical personnel. The proportion of engineers in 1978 was only 3 percent in the industrial sector and 6.6 percent (in 1980) in state-owned industrial enterprises. In the departments under the First Ministry of Machine-Building, the proportion of engineers was only 5.2 percent, and that of designers was even less, only

1 percent. In the developed countries, engineers account for 20 percent of the personnel, while designers account for 8 to 15 percent in different trades. The situation of managerial personnel is about the same. Among the present 18 million cadres, only 3.2 million have received higher learning, and most of these cadres are concentrated in the scientific research, cultural and educational, and public health departments, and the number of those who have received systematic specialized training in other units is even less. Among the leading cadres at the factory level in the departments under the Ministry of Electronic Industry, for example, only 10 percent are university or specialized secondary school graduates. In the entire financial system, only 12 percent of the cadres have received specialized training.

All these are the causes of the low standards of economic management, the slow popularization of the fruits of scientific and technical research, the failure to update products in time, and the low utilization rate of equipment. Thus, important equipment cannot be popularized for lack of supplementary projects, and China has become an old customer of foreign countries. Even advanced technologies cannot be used to full advantage. Because workers cannot measure up to the required technical level, for example, some automatic equipment has to be altered for semiautomatic and manual operation, resulting in inferior products and poor economic results. China has imported from Japan a complete set of ethylene equipment with a productive capacity of 300,000 tons. Operated by a worker in Japan, it can produce 337 tons each day; but operated by a worker in China, the same type of equipment can produce only 144 tons each day. Furthermore, if the workers' scientific, technical, and cultural standards are not up to the requirements of production, there will be not only low productivity, but also frequent injuries in the line of duty, technical accidents, and serious losses from lack of equipment maintenance. In the Baotao Iron and Steel Co., for example, the cultural level of 87.02 percent of all its workers is below the junior middle school level, and 64.9 percent of them are illiterate or semiliterate. That is why the workers' technical standards are actually lower than their grade levels. For example, some grade-4 steel smelting workers do not know what silicon dioxide is, and some grade-5 furnace repair workers do not know what type of bricks are used for the top of open hearths. In 1979, repairmen did not know that before changing an oxygen switch, the oil must be cleaned up with carbon tetrachloride. As a result, the pipe exploded causing two deaths and two injuries. In 1981, the fine-quality steel of the plant was forced to be downgraded after being rolled in a different way, causing a loss of 860,000 yuan. According to an estimate, because of the sluggish rise in the workers' scientific, technological, and cultural standards, the average fixed-asset value for an industrial worker under the state-owned system in 1981, compared with that of 1952, rose threefold, namely from 1,900 yuan to 7,700 yuan, while, in the same period, the educational level of the workers rose only 2.5 percent, namely, from an average of 8 years to 8 years and 2 months, the second year of junior middle school at most. The increase in the value of fixed assets per worker and the sluggish rise in the workers' educational level, a serious mismatch, are undeniably among the important causes of the drop in output value per unit fixed assets.

D. Serious Waste, Deteriorating Economic Results

The serious waste brought about by backward management, inferior technical equipment, and poor labor quality has been the cause of the continued deterioration of economic results. This is a concrete reflection of the drop in the proportion of national income in the GVIAO. This proportion was 76.82 percent in 1949, 73.51 percent in 1953, 76.47 in 1957, and then 60.7 percent after a drastic drop during the 3 years of the "Great Leap Forward." The drop was even more serious during the 10 years of turmoil, and by 1977, it was down to 52.93 percent. After an upswing to 54 to 55 percent in 1979 and 1980, it was again down to 51.8 percent in 1981, 51.2 percent in 1982, and further down to 50.7 percent in 1983.

From 1949 to 1977, China's GVIAO was 6,308,900,000,000 yuan, and the national income was only 3,408,900,000,000 yuan, only 54.03 percent of the total output value. If this proportion for the entire period were close to that of the year when the economic results were at their best, namely, 75 percent, then the national income should have been 4,731,500,000,000 yuan, a difference of 1,332,700,000,000 yuan [figures as published]. In other words, the sum of 1,332,700,000,000 yuan was wasted. Even calculated at the average rate of 70 percent during the First 5-Year Plan period, the national income should still have been 4,416,200,000,000 yuan, and the waste amounted to 1,007,300,000,000 yuan. In the same period, the accumulation funds used were 933.2 billion yuan and the accumulation rate was 28.33 percent. If the wasted portions were calculated at this accumulation rate, it would mean a reduction of 282 to 373.1 billion yuan in the accumulation fund and a reduction of 725.2 to 959.5 billion yuan in the consumption fund, approximately one-third of the consumption fund used in the same period. This is why despite the rapid economic development, the people's living conditions cannot be much improved and the construction fund is so tight.

E. Shortage of Funds

The serious waste and the deterioration of economic results have led to diminishing investment returns and a shortage of funds. The cost of capital construction has continued to rise. During the First 5-Year Plan, compared with the 1976-1978 period, the comprehensive investment in each ton of steel went up from 1,360 to 3,497 yuan; that in each ton of coal, from 56 to 179 yuan; and that in each spindle, from 684 to 1,250 yuan. In order to obtain the required productive capacity, therefore, the investment must be 1.8- to 3-fold more than in the First 5-Year Plan period. The proportion of fixed capital formed by investment has also dropped from 83.7 to 79.1 percent. This has increased financial difficulties. If the amount of accumulation funds required for expanded reproduction in the next 20 years is calculated according to the average in the 1953-1980 period then 30 million yuan of accumulation funds will be required to create a national income of 100 million yuan, and 18 million yuan of accumulation funds will be required to increase the GVIAO by 100 million yuan. At this rate, 4.6 to 5 trillion yuan, or an annual average of 240 billion yuan, will be required in 2000. Even under conditions of smooth economic development, this goal cannot be reached until

1994. If the GVIAO is increased at the average rate of 4.5 percent each year, then in the 1983-1985 period, about 470 billion yuan of accumulation funds are required. In view of the present economic results, however, only 415.6 billion yuan can be obtained, even though a 30-percent accumulation rate is maintained, and the shortfall is still fairly large. Therefore, unless waste is overcome and economic results are improved, the problem of funds required for future development, particularly that of accumulation funds required in the first 10 years, will be a difficult one.

II. Problem of Speed in National Economic Development

The problem of speed in the future national economic development should be considered from two aspects. First, from the aspect of historical development, we can see that in the 29 years from 1953 to 1981, we had the experience of a high, healthy annual growth rate of more than 10 percent in 13 of the years, more than 15 percent in another 8 of the years, and an average of more than 10 percent during the First 5-Year Plan period. This shows our ability to achieve high speed in development. From another aspect, however, we can see that if the problems mentioned earlier are not satisfactorily solved, then we may still repeat our past mistakes of having high accumulations and high speed but poor economic results. That is why striving for high speed "while steadily working for more and better economic results" is inseparable from the degree of success in solving these problems. In other words, the degree of our success in solving the problems of backward management, inferior technical equipment, and poor labor quality will have a decisive effect on the speed of healthy development of China's national economy. Among these problems, that of labor quality is the key one because it has a bearing on whether we can achieve and maintain a high level of management and whether we can take full advantage of science and technology and advanced equipment. If we say that management and technology are the two wheels of economic development, then labor quality is the main axle connecting these two wheels. If the main axle is not strong, the wheels cannot turn quickly. The following ideas are based on this line of reasoning:

A. After readjusting and restructuring the national economy, the problem of disproportion will be basically solved before 1985, and then active efforts will be made in the technical transformation of the national economy, so that in 1990 the situation will be basically up to the level of China's best national conditions, particularly in macroeconomic and microeconomic planning and in the improvement of management. If preparations can be made in the 1980's for the cultivation of talents in various fields, both qualitatively and quantitatively, for economic development in the 1990's, and if scientific and technical progress can be closely coordinated with national economic development, then a healthy high speed can be obtained in the 1990's. The high speed can certainly be obtained according to our observations of foreign experiences as well as China's own historical development. Therefore, in our next four 5-year plan periods, our annual average growth rates will be 5, 7, 8, and 10 percent, respectively, or, to be more conservative, will be 4.5, 6, 8, and 10 percent, respectively. The concrete developments will be as follows:

[A]

Period	1980	Sixth 5-Year Plan	Seventh 5-Year Plan	Eighth 5-Year Plan	Ninth 5-Year Plan
Growth rate (percent)[1]		5	7	8	10
GVIAO (100 million yuan)[2]	7,159	9,137.03	12,815.6	18,829.96	30,325.65
Population and per capita amount (100 million persons, yuan, dollar/person)					
Population (100 million persons)[3]	9.8255	10.4051	10.9798	11.5078	11.8884
RMB (yuan)	728	878	1,167	1,636	2,551
Dollars[4]	260	314	417	584	911
Population (100 million persons)[5]		10.5185	11.2552	11.9428	12.5630
RMB (yuan)		869	1,139	1,577	2,433
Dollars		310	407	563	869

[B]

Period	1980	Sixth 5-Year Plan	Seventh 5-Year Plan	Eighth 5-Year Plan	Ninth 5-Year Plan
Growth rate (percent)[1]		4.5	6	8	10
GVIAO (100 million yuan)[2]	7,159	8,920.83	11,938.75	17,541.61	28,250.76
Population and per capita amount (100 million persons, yuan, dollar/person)					
Population (100 million persons)[3]	9.8255	10.4051	10.9798	11.5078	11.8884
RMB (yuan)	728	857	1,087	1,524	2,376
Dollars[4]	260	306	388	544	849
Population (100 million persons)[5]		10.5185	11.2552	11.9428	12.4630
RMB (yuan)		848	1,061	1,469	2,267
Dollars		303	379	525	810

Notes:
1. This refers to the average annual growth rate in the 5-year plan period.
2. This refers to the figure in the last year of the 5-year plan, namely, 1985, 1990, 1995, 2000.
3. Average number in the last year of the 5-year plan when women of childbearing ages have an average of 1.7 births each.
4. Calculated at the ratio of 1:28 between dollar and RMB.
5. Population in the last year of the 5-year plan when childbearing women have an average of two births each.

Should either one of these two plans be realized, we will be able to overfulfill the strategic plan of quadrupling the GVIAO in 2000, as laid down by the CPC Central Committee.

B. Certain success will be achieved after readjusting and restructuring. However, if the progress of technical transformation and the improvement of management are not fast enough, the growth rates according to the first plan cannot be guaranteed in the 1990's, in which case, the growth rates will be 4.5, 6, 8, and 8 percent, or 5, 7, 8, and 8 percent. In other words, if the work of readjusting goes on well, and economic results are improved remarkably, economic development will be faster. However, if technical transformation and improvement of management are slow, and particularly if the required personnel are not enough, then we may not be able to expand the success already gained, and, worse still, the standard of management and practical application of science and technology already achieved, along with the development of science, technology and production, may still be in danger of being dragged down to a lower level. This will certainly affect growth speed in the 1990's, and economic results will not be able to continue development. Therefore, the deciding factors in the continued improvement of economic results are standards of management and practical application of science and technology, which are, in turn decided by labor quality. If this problem is not solved satisfactorily, then in 2000, the result of our efforts can only be close to the objective of quadrupling the GVIAO. The details are shown in the following table [see table, page 214].

C. After readjusting and restructuring, certain progress will be made in proportionate development, coordination of system structure, and technical transformation, and management, although this progress may be slow and sometimes even subject to reversals. However, if labor productivity is not raised fast enough, the improvement of economic results is not apparent, and particularly if appropriate personnel have not been trained in sufficient numbers, then the fruits of scientific and technical progress will not be used in time for economic development; there will not be enough personnel to keep up the work; and the standard of management will not be suitable for the development of new productive forces. Then the speed of development in the next 20 years can only be increased slowly, and a third tendency may appear. According to this tendency, growth rates will be only 5, 6, 6.5, and 7 percent, or 4.5, 5.5, 6, and 6.5 percent, and the result will be far short of the strategic goal set by the CPC Central Committee. Of course, the reappearance of high accumulation, high speed, and poor results cannot be precluded [see table, page 214].

Period	Growth rate (percent)[1]	GVIAO (100 million yuan)[2]	Population and per capita amount (100 million persons, yuan, dollar/person)					
			Population (100 million persons)[3]	RMB (yuan)	Dollars[4]	Population (100 million persons)[5]	RMB (yuan)	Dollars
Sixth 5-Year Plan	5	9,137.03	10.4051	878	314	10.5185	869	310
Seventh 5-Year Plan	7	12,815.6	10.9798	1,167	417	11.2552	1,136	407
Eighth 5-Year Plan	8	18,829.96	11.5087	1,636	584	11.9428	1,577	563
Ninth 5-Year Plan	8	27,666.86	11.8884	2,321	831	12,4630	2,220	793
Sixth 5-Year Plan	4.5	8,920.83	10.4051	857	306	10.5185	848	303
Seventh 5-Year Plan	6	11,938.75	10.9798	1,087	388	11.2552	1,061	379
Eighth 5-Year Plan	8	17,541.61	11.5078	1,524	544	11.9428	1,469	524
Ninth 5-Year Plan	8	25,773.89	11.8884	2,168	774	12.4630	2,068	739

Period	Growth rate (percent)[1]	GVIAO (100 million yuan)[2]	Population and per capita amount (100 million persons, yuan, dollar/person)					
			Population (100 million persons)[3]	RMB (yuan)	Dollars[4]	Population (100 million persons)[5]	RMB (yuan)	Dollars
Sixth 5-Year Plan	5	9,137.0	10.4051	878	314	10.5185	868	310
Seventh 5-Year Plan	6	12,288.09	10.9798	1,114	398	11.2552	1,086	388
Eighth 5-Year Plan	6.5	16,572.48	11.5078	1,456	520	11.9428	1,403	501
Ninth 5-Year Plan	7	23,497.03	11.8884	1,976	706	12.4630	1,885	673
Sixth 5-Year Plan	4.5	8,920.83	10,4051	857	306	10.5185	848	303
Seventh 5-Year Plan	5.5	11.658.63	10.9798	1,062	379	11.2552	1,035	370
Eighth 5-Year Plan	6	15,602.74	11.5078	1,356	484	11.9428	1,306	466
Ninth 5-Year Plan	6.5	21,375.75	11.8884	1,789	642	12,4630	1,715	612

Notes:
1. This refers to the average annual growth rate in the 5-year plan period.
2. This refers to the figure in the last year of the 5-year plan, namely, 1985, 1990, 1995, 2000.
3. Average number in the last year of the 5-year plan when women of childbearing ages have an average of 1.7 births each.
4. Calculated at the ratio of 1:28 between dollar and RMB.
5. Population in the last year of the 5-year plan when childbearing women have an average of two births each.

If we can overcome all the difficulties and obstacles and then fulfill or overfulfill the strategic plan of quadrupling the GVIAO by 2000, China may rise to sixth place in the world in terms of economic strength, and living standards will be fairly greatly improved. Per capita consumption will rise from 256 yuan in 1980 to 882 to 924 yuan (3.4 to 3.6 times that of 1980). Furthermore, even if total output value remains unchanged, the improved economic results and more rational proportionate relationship between accumulation and consumption might raise per capita consumption to from 1,191 to 1,248 yuan (about $425 to $445, or 4.5 to 5 times that of 1980). This consumption level is generally equivalent to that of Japan in the early 1960's, of the FRG in the mid-1950's, and of England and France in the late 1940's.

III. Ideas and Suggestions

A. Strengthen Scientific Planning, Establish a Responsibility System

China's present poor national economic results are largely due to inadequate and unscientific planning and the lack of a system of overall responsibility at all levels. Some large or medium-size key enterprises, only newly built, have lost nearly 10 billion yuan either because of the shortage of energy and raw materials or their unwanted products and other causes, all as a result of unscientific planning. Again, the stockpiling of unmarketable goods among the small enterprises (which are not included in state plans), price policies which protect the backward, and the unlimited use of circulating funds by enterprises (at the end of 1981, circulating funds in the possession of state-owned enterprises totaled 354.5 billion yuan, nearly equal to the national income of the same year) all show the backwardness of planning and management. Unless such planning is improved, the economic results can only remain poor.

In a planned economy, the planning must conform to socialist economic laws calling for planned and proportionate development. Any plan that is inconsistent with proportionate development and lacks scientific data cannot be a practical plan. We must change the impractical ideas passed down to the lower levels in the name of plans and even more strongly oppose administrative intervention not called for by plans, particularly the starting of any project on the strength of a signed slip from some person. A sound responsibility system should be set up under which both the planning units and the implementing units should have their own shares of responsibility. If any loss is incurred because of faulty planning, the departments issuing and approving the plan will have to bear the responsibility. On the other hand, if the loss is the result of any laxity in the implementation of a correct plan, then the department in charge of the implementation should be held responsible. This system will be a great help in raising the standard of management, improving economic results, and reducing waste.

B. Pool Funds and Materials To Ensure the Success of Key Projects, Make Full Use of People's Savings

While funds are insufficient and widely scattered in the country at present, the pooling of funds and materials to ensure the success of key projects can help reverse the situation of having long construction periods and poor economic results, and can lay a good foundation for future development. Key projects can take the form of a joint central and local government venture, so that they can really be key projects (including new and transformed projects). The central and local government should make a joint investment and share responsibility for construction and production. Most of these key projects have a bearing on the national economy and the people's standard of living, and should be coordinated by the state in collaboration with the localities. This will guarantee the availability of funds and the length of construction period and quality of construction, besides avoiding the waste of materials in duplicate projects. Smooth progress in construction for key projects to be put into operation will soon add to productive capacity which will promote local economic development with benefits to both the locality and the country as a whole. After completion, the new enterprise can still be run as a joint venture with benefits divided according to agreement.

In order for the state to pool its resources on key departments, people's savings must be fully utilized. Savings deposits mean not only deferred purchasing power, but also a source of funds for economic development. One important reason for Japan's ability to achieve high accumulation, high speed, and high consumption is that in the makeup of its accumulation funds, individual savings amount to 49.1 percent, nearly one-half. It was for this reason that Japan was able to maintain an accumulation rate of more than 30 percent. This shows that it is entirely possible for savings to be used as an effective means of promoting economic development.

People's savings deposits have increased rapidly in China. In 1952, the total savings deposits of the urban population was 860 million yuan; this rose to 27.83 billion yuan in 1977, a 32.36-time increase. In 1977, the GVIAO was 6.88 times that of 1952. In 1981, total savings deposits rose to 52.4 billion yuan, 60.9 times that of 1952, and the GVIAO rose only ninefold. Thus, the rate of increase in savings deposits has greatly exceeded that of the GVIAO and national income. On the one hand, we can use these savings for investment. For example, the amount of savings deposits in 1981 already exceeded one-half of expenditures in 1982. Furthermore, bank loans must be redeemed and with interest, and economic results are generally better, although, of course, the extension of loans cannot deviate from economic development plans. On the other hand, it also shows that when the supply of consumer goods in terms of quantity, quality, prices and services, is still inadequate for the demand, people are compelled to save their money and wait for an appropriate opportunity to purchase. For this reason, we should make good use of savings to increase market supply, and particularly to promote and develop the production of articles in daily need and in the technical transformation of the enterprises concerned, namely, those small and medium-size enterprises with a good market and able to recover their investments with a good market and able to recover their investments quickly. Thus, with the support and backing of banks, the state can more easily concentrate its energy on key projects and key departments. The banks can also gain some profits from the investments, and the people's daily needs can be more quickly satisfied.

C. Active and Cautious Utilization of Foreign Funds

The shortage of funds for construction is still fairly serious in China at present. For importing advanced technology and management know-how to fill certain gaps in production, and for technical transformation of enterprises and the increase in the competitive power of its products on the international market, China must make use of foreign funds. However, there must be plans and purposes in the use of foreign funds. Borrowing in a rush before there is any plan to use the money, or using the borrowed money without getting the desired result will only add to our burden. Japan gave China a loan of about 166 billion yen, but up to the beginning of 1982, China had used only 3.6 billion yen, and left the rest untouched. For this reason, Japan charged a handling fee of 800 million yen, equivalent to about $400,000, for the deferred use of the loan. Furthermore, China had to pay interest on the loan before using it. Now, let us cite another example. The Jinling Hotel of Nanjing was built with a foreign loan of $50 million, and will be formally opened in September or October this year. However, since its ownership is still undetermined, nobody can be sure who will take charge of it. Furthermore, its source of customers is uncertain. Even though all the foreign tourists, overseas Chinese and compatriots of Hong Kong and Macao received in Nanjing are accommodated in the Jinling Hotel, not even 50 percent of its capacity is being used. This situation will make the redemption of the foreign loan with interest difficult, and there will be problems with workers' wages and utilities, such as water, electricity, and gas. In addition, importation of duplicate equipment in large quantities and prolonged importation of accessories for imported equipment would also adversely affect economic results in the use of foreign funds.

Loans in any foreign currency must be redeemed, and there can be very few interest-free loans. Therefore, the pros and cons must be carefully weighed before borrowing. First, we must be sure that there will be enough to gain after repaying a loan with interest. If there is nothing to gain after repayment, we will simply be serving other people's interests. Second, we have to consider the project's role in overall economic development and the concrete benefits it can bring about. It would be best to have both. However, if this is impossible, we must be sure that the benefits for overall economic development far exceed whatever loss the project may cause; otherwise, the project must not be started. Above all, we must never let local benefits jeopardize the overall interst.

D. Close Attention to Technical Transformation of National Economy

So-called technical transformation means the renovation or transformation of obsolete and backward equipment and technology by raising them to a standard commensurate with the present level of scientific and technological development and the level of technical skill of trained laborers, and on a scale permitted by the state's financial and material resources, in order to raise labor productivity. If this problem can be solved during the Sixth and Seventh 5-Year Plan periods, then the laborers whose cultural, scientific, and technical standards have been greatly raised, will be able to master advanced production techniques and further raise labor productivity, thus, economic development in the 1990's will be more healthy and rapid.

If the renovation of China's equipment, now valued at 300 billion yuan, is to be continued in the next 10 years, then 30 billion yuan of equipment has to be updated each year, and with the addition of the required accessories, the total amount will be 42 billion yuan. Furthermore, we must also catch up with the work of trial production. Therefore, all scientific research and production units, regardless of their military or civilian status, must be mobilized to make a common effort. The important thing is that there must be priorities in the order of importance and urgency. First, we must attend to those departments which play a decisive role in technical transformation and development of the overall national economy, such as the machine-tool trade, electronic industry, and the light, textile, and food industries with regard to their transformation; to the trial manufacture and importation of those important items which China still does not have, in order that the technical transformation of the national economy can produce better and quicker economic results. At the same time, with the limited manpower and material resources now at our disposal, we should concentrate our resources on the most knotty problems. The departments responsible for technology or equipment, the scientific research units concerned, and the interested enterprises should combine their efforts to solve the problem of not only producing, but also popularizing, the results in order to accelerate technical transformation. Then the transformation of the national economy will be able to proceed smoothly.

E. Improvement of Employment Policy, Encouragement to Society in Running Schools

The excessive speed of population growth has indeed brought many problems in China's economic development and in improvement of its people's standard of living. The control of population growth is, therefore, entirely correct and necessary. Now that the people are already here, as a matter of fact, we should not be obsessed with the idea that more people mean more problems and only be concerned with the problem of clothing and feeding them, although success in this direction would be a very great achievement. The crucial issue is that in addition to consumers, there are, more important still, producers. Besides the adverse effects of a large population on living standards, we should also study how to turn the pressure of a large population on the society and the economy into a positive force in social and economic development.

China's present employment policy is to a certain extent a policy of providing relief in the form of employment. In the 1979-1982 period, for example, more than 30 million youths were given jobs. Most of them had not received any vocational training, and some of them simply "inherited" the jobs from their parents who had certain technical skill and experience. Providing jobs to such a huge number of people is certainly a good dead in solving a social problem. However, the losses have been tremendous in view of the lowering of labor productivity and the increase in the number of injuries in the line of duty and technical accidents as a result of this action. Labor productivity has an important bearing on the question of whether we can attain our strategic objective. Some of these people were employed by labor service companies of various types or were engaged in individual undertakings. Because of lack of training, these graduates from junior middle or senior middle schools can offer only simple physical labor, and their income is generally insufficient to support themselves. Without any vocational skill or opportunity for on-the-job training, they can only continue to be manual laborers indefinitely, thus causing a huge labor surplus. On the other hand, the need for qualified laborers for construction and production cannot be met. The result is a vicious circle in the reproduction of labor power. Therefore, the policy of providing jobs as a relief measure must be changed, and a productive type policy that is helpful in raising labor productivity should be upheld. In the future, it must be clearly stipulated that all departments must accept only those new employees who have received vocational or specialized training, so as to ensure a rise in labor productivity. It should also be stipulated that a portion of the benefits derived from higher labor productivity or from the reduction of loss be appropriated for training of prospective employees. All fairly large enterprises and departments should have their own training bases; labor service companies should make every possible effort to run vocational classes on a work-study basis; and small and medium-size enterprises and departments in charge of individual undertakings should also jointly run training classes on a work-study basis in order that those looking for jobs may maintain a minimum standard of living and acquire the necessary skill during the training period. The units running these schools may get some compensation from the students' part-time work. By this means, a benign cycle in the reproduction of labor power will prevail.

Improvement of employment policy to strengthen vocational or specialized training of prospective employees and encouragement to the society in running schools are the two methods to solve China's present problem of poor labor quality, and neither can be lacking. In order to attain the strategic objective of quadrupling the GVIAO in 2000, according to calculations, we are still short more than 20 million professional personnel of university or specialized college level. At present, not many people of the suitable age in China can enter universities. In 1981, the admission rate was only 0.89 percent, whereas it was 45.2 percent in the United States (1975), 37.9 percent in Japan (1979), 25.2 percent in France (1978), 22.7 percent in the FRG (1977), and 22.9 percent in England (1976). In 1979, there were in China altogether 633 full-time institutes of higher learning with 1.02 million students. Even at a 10-percent-increase rate, the number of students in 1990 will still be fewer than 3 million. If one-quarter of them can graduate, then in 2000, we will still be unable to produce 20 million specialists, and the availability of education funds cannot be fully assured. In 1976, China's education funds amounted to 2.07 percent of the national income, whereas it is 7.3 percent in the United States and 8 percent in England. Ours was even below the level of France in 1950 which was then 2.4 percent. Some people have estimated that the education funds should be 6 to 7 percent of the national income for a country to join the advanced rank. In 1981, China's education funds were increased to 10.2 billion yuan, only 2.6 percent of the national income. At 5 percent of the national income, the amount should be 19.4 billion yuan. The shortage of education funds has a direct impact on enrollment in institutes of higher learning and improvement of teaching quality. Since the state is not unable to increase its education funds on a large scale, the mobilization of all positive factors and help and encouragement to the society in running schools should be among its policies. At present, in most of China's universities and specialized colleges, the ratio of teachers to students is excessive, and in the society, some people with special skills are unoccupied. The situation is now favorable for providing various forms of higher education or specialized education on a paying basis. At present, some of these universities or specialized colleges are warmly welcomed in the society. Some of them are charging as much as 300 yuan a year, and yet there are many enthusiastic applicants for enrollment. Along with the development of rural production, peasants are now showing increasing interest in science, culture, and technology, and are in a position to bear the expenses. If the competent units of scientific and technical personnel will organize study classes, university courses for then during slack agricultural seasons, or short-term specialized courses, such action will also certainly be welcomed. If these universities can turn out 150,000 specialized talents each year, they will be making a great contribution to the four modernizations in the way of specialized personnel. Thus, more talents can be cultivated without increased state funds to satisfy the society's thirst for knowledge, and the running of these schools can provide more job opportunities. This means "killing three birds with one stone." The key issue is that government at all levels must provide the necessary supervision and support, guarantee good quality of teaching, and set up a reasonable scale of charges in order that there will be a healthy development of schools run by society.

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ECONOMIC AFFAIRS

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[Speech by Ni Zhifu, member of the Political Bureau of the CPC Central Committee and secretary of the Tianjin Municipal CPC Committee, at 22 January municipal meeting to sum up investigations and studies of three basic industrial links: "Strengthen Basic Links and Develop Tianjin's Industry"]

[Text] Comrades:

This meeting to sum up our investigations and studies has proceeded well in the last few days. In May last year the municipal CPC Committee and government organized the departments concerned to conduct fairly large-scale investigations and studies of the three important basic technologies, basic materials, and basic component parts ("three basics" for short). Of these, basic technologies include basic designing principles, basic methods, and training of talented people. Comrades Bichu and Jingheng have already given their opinions on the situation of the investigations and ways to further strengthen the "three basics" work. I agree with their opinions and will not speak more on this. Although our investigations were confined to the machinery and electronic industries, the results merit the attention of the masses of comrades on the economic front, and in some cases, may be used by various trades for reference. In the future we should continue the industrial survey as planned by the State Economic Commission in order to clarify the basic situations in the various links of the entire industry in a more comprehensive and thorough manner. During this "three basics" investigations, comrades strongly felt that not only the "three basics" of the machinery and electronic industries but also the basic links of the entire industry need to be strengthened. They also deeply understood that the focus of the industrial and economic work during the entire "Seventh 5-Year" Plan period should be placed on laying a solid foundation--a good material, technology, and management foundation for the leap in the 1990's. In particular, they felt that as Tianjin's industry is situated in an important period of development, immediate challenges and future development urgently press us to attach importance to and study the strategies and countermeasures for the development. This showed that positive ideological achievements have been scored in our "three basics" investigations, and that we have enhanced our understanding of the development of Tianjin as an old industrial base. Today I would like to take this opportunity to speak on the development of the basic links of industrial development on the basis of the situation in the "three basics" investigations.

It Is Necessary to Strengthen Development of Basic Links in Order to Revitalize Tianjin's Industry

At the beginning of the 1980's, Comrade Xiaoping said: "The 1980's is a very important, decisive period for our construction. A good foundation laid during the 10 years plus the efforts in the next 10 years will make our realization of Chinese-style modernization in 20 years realistic and truly promising." Comrade Xiaoping regards the 1980's as a period for laying a foundation for the entire modernization cause. In his report to the 12th National Party Congress, Comrade Yaobang pointed out: "In order to accomplish the fighting goal in 20 years, we should take two steps in terms of strategic arrangements: We should lay a solid foundation, accumulate strength and create favorable conditions in the first 10 years, and should enter a new period of economic revitalization in the latter 10 years." At the recent National Conference of Party Delegates, Comrade Ziyang pointed out the need to basically lay a foundation for the new economic structure during the "Seventh 5-Year" Plan period, and to intensify key construction projects, technical transformation and development of intellectual resources so as to prepare necessary reserve material and technological strength for the continued economic and social development in the 1980's. I think our strategic goal of economic work for the "Seventh 5-Year" Plan period can be summarized as "laying a solid foundation." Laying a foundation includes many areas. Judging from the development of the entire national economy, agriculture is the foundation. Judging from the strategic priority of quadrupling the industrial and agricultural output value, agriculture, energy and communication, education, and science are the basic links restricting the development of the entire national economy. In view of the situation in bringing the relations between the various economic sectors into a better balance, we should vitalize enterprises, form a commodity market system, and improve the means of macroeconomic control. If we do a good job in reforming these sectors, we can lay a basic foundation for establishing a socialist economic system with Chinese characteristics, vigor, and vitality. These represent vary important spadework. Our various departments should pay great attention to this work, and in the course of formulating and implementing the "Seventh 5-Year" Plan, should exert untiring efforts to achieve the goal of "laying a good foundation" for achieving a greater economic development in Tianjin in line with its actual situation. The building of industiral basic links is closely related to the work of "laying a good foundation." Therefore, we may also say that today's meeting on summing up and studying ways to strengthen the building of the industrial basic links is also one of the components of the work of laying a foundation.

We should note that through more than 30 years of development since the founding of China, Tianjin's industry already has a fairly good foundation. Since the 3d Plenary Session of the 11th CPC Central Committee in particular, Tianjin's industry has embarked on a road of development in a sustained, steady, and coordinated manner, creating better conditions for future development in various fields. Through readjustment, 18 key light and textile industries and 5 supporting industries have rapidly developed. The imbalances in the ratio between the light and heavy industrial production sectors have improved and fruitful and explorations have been made in the development of technological cooperation and in the production of component parts among specialized departments. Through reform, we have expanded the decision-making power of enterprises, changed some production relations which have affected the development of productive forces, and mobilized the enthusiasm of enterprises and the staff members and workers. And through comprehensively consolidating groups of key enterprises in various stages, the management of enterprises have been strengthened and industrial production has begun to shift to the path focusing on raising economic results. We have used foreign funds to import technology and to carry out technical transformation among outdated enterprises, thus promoting technical progress and equipment replacement in industrial enterprises, and forming a group of new production capacities. As an important industrial base in north China, Tianjin has achieved major development in the scope and level of its industrial sector.

However, we should also note that our municipality's industrial development has encountered a new situation and a new challenge. The rise of the new world technological revolution has greatly affected the production, energy, and consumption structures, and the various aspects social livelihood. The adoption of new production means has greatly changed the outlook of industrial production. Tianjin is one of the coastal open cities and is playing a pivotal role in linking China with foreign counties. Tianjin's industry should make better use of domestic and foreign markets, domestic and foreign funds, and domestic and foreign resources, gradually change from a state of mainly gearing to domestic needs to a state of satisfying both the domestic and foreign market demands with an emphasis on foreign markets, and become competitive in the international markets. The great industrial development in the central and western parts of China has called on the industrial base of Tianjin from mainly providing manufactured goods of general quality or general metallurgical and chemical materials and machinery and electronic equipment in the future, to providing more technology-intensive products, high-and medium-grade products, basic materials with high properties, and high-level technology and equipment, especially complete sets of equipment. Some coastal and inland industrial cities have developed rapidly and some developing industrial cities are taking shape. Some favorable conditions of Tianjin's industry are losing ground in the acute market competition.

In facing the challenge, various sectors of municipal industry cannot meet the needs of the current situation. Major manifestations of the various sectors are backward products, the slow progress in upgrading and updating, and the low rate of setting up production lines. As for the life cycle of 3,289 major products turned out by light industry, textile industry, electronic industry, and building material industry, those that remain in the developmental stage only account for 6.4 percent of the total number; those that are in the growing stage, 22.1 percent; those that are in the prime of life, 62.3 percent; and those that are in the recession period, 9.2 percent. This means that 70 percent of products urgently need to be upgraded or updated. The backward products that are weak in the international market competition constitute an important reason for the decline of foreign trade and exports over the past few years. Meanwhile, most exported commodities are primary and rough products and few of exported commodities are staple first products that can be accepted by international markets. In particular, few of them are machinery and electric products. A trend of supplying fewer products of Tianjin to the domestic markets across the country has also taken shape because of the slow progress in upgrading and updating. Since 1978, of 44 major products turned out by the municipality, the output of 21 products has become lower than the top level output in the country and that of some famous trademark products has been surpassed by outside places.

Such a situation has indeed made some comrades feel a "sense" of danger. However, the key to dealing with the situation lies in adopting measures and policies to cope with the problems. He contended that only by attaching great importance to the challenge, adopting correct measures, and making full use of the favorable conditions of the municipality will be able to have Tianjin take the lead in the program of building modernization. Then, what are our correct measures? The answer given by some comrades to this question is that efforts should be made to concentrate on enhancing basic links, which should be regarded as an important measure to suit the remedy to the problems.

Some comrades are afraid that grasping the construction of industrial basic links might not be of great help like "distant water not being able to quench present thirst." He contended that efforts should be made to correctly deal with the relationship between "distant water" and "near water" and that "near water" is handy but "distant water" is of long standing and well established. The best way at present is to grasp "near water" on the one hand, and "distant water" on the other hand, and to adequately make use of the "near water" and to develop the "distant water" on a long-term basis. Therefore, the idea that the way of "quenching present thirst" is set against that of "developing distant water" is unreasonable. In order to create conditions for an economic leap forward, to maintain a balance among markets, to accumulate funds, and to improve the people's livelihood in the upcoming few years, we will fulfill our target by grasping the current rate of increase and economic results. However, by no means should we pay attention only to immediate interest and turn our blind eye to the far-reaching target. Efforts should be made to make progress first and then to sum up the experience gained in the former period, and certain efforts should also be exerted to make preparations well for achieving faster development. If we blindly seek unrealistic high speed and expand our reproduction relying on the backward basis of low technical level and out-dated equipment, and we will not be able to upgrade and update the out-dated technology and equipment, to change the backward technology of social production, and to create reserve forces for developing industries and the economy as a whole although we can make progress in output and output value. Therefore, we should realistically exert our efforts to successfully grasp the construction of industrial basic links by taking the excellent opportunity of stable and harmonious development in the economy during the implementation period of the Seventh 5-Year Plan, in order to create necessary conditions for making industries prosperous in the future. This should be regarded as an important policy for developing industries throughout Tianjin Municipality.

In Developing Industry, It Is Necessary To Properly Handle the Relationship Between the Basic and Other Links

After the current investigation, many comrades have had a better understanding of the basic way for developing the municipal industry. That is to grasp the basic links, "fist products," joint research, highly sophisticated products, readjustment, complete sets of equipment, management, and product quality, and to embark on the road of carrying out technological transformation, mastering advanced technologies, blazing new trials, developing specialized cooperations, tapping potentials, and increasing efficiency. Viewing the work in strengthening the materials, technological, and management foundations of industry, we can find that many links need to be grasped, and lots of relationships need to be handled correctly. Now I want to emphatically speak on the relationship between the basic and other links, and discuss it with all of you.

1. To raise the level of the finished products, we must proceed from raising the level of the basic links.

It should be noted that we must depend on the "solidness" of the basic links to pass the "acceptance test" for the updating and upgrading of products. Now many enterprises and trades have attached importance to raising the level of products, have put lots of funds in this respect, have adopted many measures for this work, and have yielded many results. Under most circumstances, however, it is the backwardness in the basic links that creates difficulties for updating and upgrading the products and for raising the level of products. The major reason why our vehicles, tractors, and engineering machines have often suffered from the oil leakages is that our hydrolic pressure and sealed articles have failed to reach the standards. An important reason why we cannot manufacture some products by ourselves and must import them from abroad is that our basic links are not solid enough. For instance, early in 1952 our municipality successfully developed the first small car of our country. But owing to the backward basic links, we were unable to form a great production capacity for this car, even though we developed the prototype. And none of the various vehicles manufactured afterwards have prevailed in our country. A few years ago production of the double-line seat model alone enabled our double-line seat cars to develop quickly. This shows that without good basic links, an industry or a trade cannot actually develop. Many people have reflected that many products origianlly produced by Tianjin have yielded results in places other than Tianjin. Why? An important reason is that our industrial technological equipment is backward, our technologies and methods are not good enough, and the function of our basic materials and basic elements is poor. In a word, our basic links are backward. Although our designing capacity is not bad in many fields, we have no ability to rapidly apply research findings to practical production.

It should also be noted that the improvement in the levels of the industrial basic links and the finished products are interdependent, and promote and supplement each other. The finished products constitute the final results of the industrial production as well as the comprehensive expression of the raw materials, designing, technologies, methods, equipment, and surveying means. Aiming at updating and upgrading the finished products, we can organically link the technological development, import, transformation, and management with the semifinished and raw materials, spare and component parts, supplementary materials, and technological cooperations. By stressing on raising the level of the basic links, we precisely aim at raising the level of the finished products, rather than putting the former against the latter or separating the former from the latter.

The present major problem is that some comrades have not attached sufficient importance to the strengthening of basic links. If we give attention to finished products alone to the neglect of the work of basic links, we will fail to improve our finished products. Combining finished products with basic links and improving all the relevant factors which influence the quality of finished products, we will be able to markedly improve the level of industrial production as a whole. People have summarized the "three basics" investigations of the machinery and electronic industries as promoting the major link to guide the "three basics" and grasping the "three basics" to promote the major link. Based on the requirement for upgrading the level of the major link, we should clearly decide the areas of the basic links where breakthroughs are to be made, give guidance to and make proper arrangements for the development of the basic links, and improve the level of basic links as soon as possible. Achieving breakthroughs first in some areas of the basic links will also upgrade the level of the major link. As has been shown in many cases, it is as often as not the successful production of new accessories and component parts that spurs the production of new products, but it is the development of basic technologies and new designing principles and methods that leads to the emergence of a series of new products.

To combine the production of finished products with the work of basic links, we should also properly handle the relationship between partial, direct economic benefit and social benefit, and between immediate interests and long-term interests. Some basic links may yield rather low direct economic benefit to certain projects, but they can create very great economic benefit to society; others may not have very high immediate benefit, but they can help improve economic results on a long-term basis. Therefore, we must never neglect them. Take the radial drill produced by the No 4 machine tool plant. The durability of the pilot [dao zhu 1418 2691] failed to reach standards in the past, and therefore the precision was directly affected. After heat treatment, precision and durability have greatly improved, and the product won a silver medal. At present a crucial reason for the many substandard machinery products lies in the quality of iron casting. Our castings are large and thick with poor durability and precision. In order to win a name of high properties for our cast iron, we have to raise the temperature of molten iron to more than 1,500 degrees. An important measure for achieving this is to use quality casting coke. Therefore, we should be determined to solve the problems in casting coke supply. It is worthwhile to spend a little more money in this link, because it helps make casting light and handy in design and structure, and make the machine more durable. This is really worthwhile, and this means to improve social economic benefit.

2. It Is Necessary to Place Strengthening of Basic Links in an Important Position When Carrying out Technical Transformation.

During the "Seventh 5-Year" Plan period we should not rely chiefly on building new plants to develop industrial production, but should, to a greater extent, rely on the technical transformation, reconstruction and expansion of old enterprises. In technically transforming enterprises, we should adopt new technologies, new methods, and new equipment, and achieve the major purpose of technological progress. During the "three basics" investigations, we discovered a longstanding problem in transforming old enterprises. That is, some units paid more attention to the reconstruction and expansion of workshops and failed to exert sufficient efforts to renew and transform basic technologies and other basic links. According to the analysis of come comrades, capital construction actually amounted to probably 30 percent of our technical transformation projects. Many machinery plants used a great amount of outdated general machine tools with backward properties, and some textile mills still use the outmoded spinning machines of the era of Japan's Meiji Reformation even until today. After technical transformation, some units have new workshops but old technologies, and new equipment but of old models. Their technologies show little improvement, and they are still "duplicating antiques." Accelerating the rate of updating machinery equipment and speeding up the application and popularization of advanced science and technology are the important countermeasures for an economically backward country to catch up with or surpass the advanced countries. In the 1950's, Japan put forward method to invigorate its machinery and electronics industries, adopted effective supportive measures for developing the basic links, particularly for updating equipment and the production of basic component parts, and scored very fruitful achievements. It succeeded in rapidly realizing industrial modernization. Our industrial equipment and technology are in a backward state in today's world. Therefore, we should exert greater efforts to create conditions for speeding up the updating and upgrading of equipment and technology and pay attention to concentrating more funds and strength on updating equipment and technology in the course of carrying out technical transformation. The machinery and electronic industrial sectors are shouldering the mission of equipping the various economic departments. They must conduct technical transformation ahead of others and exert special efforts to make some key machinery and electronic enterprises greatly improve their technical level within a short time.

In the technical transformation of enterprises, we should focus our direction mainly on improving the quality and properties of products, increasing the varieties of products, and reducing consumption. The poor quality of products and the high consumption of materials are two weak points in our municipal industrial production. The existence of these weak points is closely related with the weak and backward industrial basic links. In the production of traditional products, many industries still use the outdated product designs and the component parts with low and poor properties. Many of them are still [word indistinct] backward techniques and technology, thus resulting in a great consumption of energy and raw materials, a high reject rate, low efficiency, poor comprehensive utilization rate, and serious environmental pollution. The casting, forging, and semifinished products are large and clumsy, and the structural designs are poor and roughly made. Manual operations account for a great proportion in the course of production. Most of light industry, particularly food processing and packing, are done by hand. In the course of technical transformation, we should pay full attention to transforming the industrial basic links, and exert efforts to change the primitive backward situation in which the material quotas are roughly estimated, the quality of products varies according to the craftsmanship, and the output quotas are calculated by ton.

At present, we are short of funds for technical transformation. We should use the limited amount of funds in places where they are most needed. In the course of investigations, we can see that there are many specific reasons for our failure in putting some technical transformation projects, such as some production lines or special equipment, into production or test run for a long time. But the most important one is that our technologies are not well coordinated; our working procedures are dislocated; the domestically made equipment are poor in quality; and the electric and liquid-pressure component parts of the production lines are out of order. Therefore, we should pay attention to the overall plans and to the supporting of technical equipment and technology of the technical transformation projects. In the future in carrying out important technical transformation projects, we should strive to let the specialized and design departments play a greater part. All trades in the industrial sectors, particularly the machinery and electronic industries should gradually readjust in a planned manner some factories which are undertaking the design and manufacturing tasks of some specialized equipment and production lines. We should support them in establishing lateral cooperation with the scientific research and design departments, strengthen our municipality's technical transformation strength, and urge some research units to contract for technical transformation tasks, in an effort to speed up the progress in technical transformation.

3. It Is Necessary to Absorb Foreign Advanced Technology and Tackle the Key Problems in the Basic Links

From 1983 to the first half of 1985, after our power to use foreign exchange had been expanded to sign 540 contracts, our municipality used the foreign exchange we were entitled to sue and made transactions worth more than $500 million and invested a total of 2.2 billion yuan in some projects. It is expected that these projects will produce 800 new products that are up to international standards. Upon the completion of all these projects, they will bring an additional 5.7 billion yuan of output value and an additional 1.5 billion yuan of taxes and profits. Practices have shown that the major policy-decision of implementing the open policy, utilizing foreign funds and importing advanced technology to speed up our country's progress in economic modernization is absolutely correct. Reviewing our experiences in the work of importing funds and technology, at least, we can find two points worthy of our attention.

We should, first of all, regard the import, mastery, and application of key items regarding the basic links as an important element of the imports as a whole. Many facts show that good results cannot be achieved by only importing combined assembly lines regardless of the subsidiary component parts; and by only importing the whole set of machines or the software technologies of the whole set of machines regardless of manufacturing methods and surveying technologies for key spare and component parts. Some projects whose spare parts must be imported continuously have become a bottomless pit in the use of foreign exchange. Due to substandard spare parts and components, some imported items have become bottlenecks hindering the production of a product as a whole. Over the past few years many enterprises in our municipality have imported a number of new technologies and equipment, and some enterprises have yielded good results from the imported items. For instance, we can note the marked achievement in the domestication of color television sets. Thus far, about 70 to 80 percent of the component parts of color television sets can be produced locally. This mainly results from the great attention paid to the import of the production technologies for key and basic component parts and the organization of the joint research projects for the domestication of color television sets. Plants and companies specializing in the production of pneumatic component parts, hydraulic pressure items, sealed items, valves, and standard items have also achieved good results in their import projects. In general, these projects require fewer investments, eat profits quickly, and produce quality products. Some of them have already manifested a good social and economic efficiency, and have played a great role in serving Tianjin and the country as a whole and in forming a complete set of the main machines. This is a very good experience. In terms of developing the numerical control technologies, if we proceed from developing microcomputers, servo-electrical machinery, numerical indicator equipment, surveying equipment, and other key spare parts and components, we will greatly accelerate the growth rate. At the same time, in applying advanced foreign technologies, we should pay sufficient attention to those key and special basic materials. We should attach importance to and be adept in not only importing technologies and equipment but also mastering, applying and further developing the imported technologies and equipment. It should be noted that the purpose of imports lies in mastery, application, and further development. The limited foreign exchange funds have prevented us from using a large amount of foreign exchange to import the finished products, raw materials, and spare parts and components from abroad. Even if we had sufficient foreign exchange funds, we cannot import a modernization drive if we refuse to enhance our ability to master and apply advanced foreign technologies. Some oil-rich Middle East countries have spent huge sums of funds on purchasing equipment from abroad, but they cannot purchase a modernized country from abroad. This is because what they bought from abroad could not become their own technological wealth. Only by combining the mastery of advanced foreign technologies with the strengthening of the initiative in conducting studies, and only by using for reference those imported advanced technologies, key installations, and production lines to conduct self-renovation and self-development will it be possible to develop even better products, and even more and better production lines and installations better suitable for the condition of our country. Otherwise, we must import equipment and technologies one after the other and year after year, and will certainly lag behind other countries forever. It should also be noted that in mastering, applying, and further developing the basic links. Proceeding from the basic links, we should learn to study, apply, renovate, and further develop foreign technologies. To be specific, we should first master the imported advanced technologies and methods, and learn to operate and use them. Second, we should master the product designing methods and the theories of new technologies, master the technological process of products and the designing and manufacturing of technological installations, and pay attention to the domestication of spare parts, components, and raw and semifinished materials. We should also preserve the advantages and discard the disadvantages in order to create installations which are better suitable for the condition of our country. We should change the imports of such hard equipment as whole sets of machines and productive lines into imports of such software as technologies and key equipment, and finally achieve domesticization, arming ourselves by ourselves. When we master and apply the advanced foreign equipment and technologies, we must not be intimidated by the huge and complicated appearance of some machines. As a matter of fact, through conscientious analysis, we can see that those seemingly huge, delicate, and complicated things are in large composed of general parts, and that key parts account for only a very small proportion. As long as we organize forces to tackle technical difficulties, we can also make breakthroughs in these key links. I have seen the automatic production lines of the Dazhong Pharmaceutical Plant. It seemed to me that the key lay in technological process and principles, in various pneumatic parts and component parts (pumps, valves and cylinders), and in electronic controlled systems. The machinery structure of its various equipment is not very complicated. The plant did nothing but using stainless steel and materials for special demands. Similar characteristics can also be found in many imported machines for food processing and light industrial and textile production. Therefore, as long as we make breakthroughs in some key links, and import a small quantity of component parts or materials when necessary, mastery of these equipment and technologies will not be a task too difficult to fulfill.

In mastering, applying, and further developing new technologies, leading persons should first attach importance to it, second organize technical forces to carry it out, and third formulate corresponding encouraging policies. They should make good use of the forces from all quarters of society, and successfully organize them for the cooperation of scientific research, designing, and production units and schools of higher learning in order to enhance the ability of enterprises for mastering and developing technologies. As far as I know, many projects have yet to be mastered and applied, and leading persons of some units refuse not only to attend to this work themselves but also to let others master and apply technologies, resulting in many technical personnel losing contacts with advanced technologies. At present it is particularly necessary to adopt various measures to organize relevant personnel to tackle technical difficulties jointly under the guidance of policies. The economic, scientific, and technological commissions, and other pertinent departments should successfully carry out the mastery, application and further development of a group of selected advanced products, key technologies and equipment, and production lines in a planned manner. Some of these production lines and equipment should be used as a means for expanding production, and others should be regarded as our "fist" products and provided in whole sets to the country.

4. It Is Necessary to Take the Road of Specialization, Cooperation, and Association in Strengthening the Basic Links.

Readjustment of the economic structure, the production setup, and the product mix to make them more balanced is an important basic task for the "Seventh 5-Year" Plan period. In developing Tianjin's industry, we should proceed from the needs in the economic development pattern of the country and the actual conditions of Tianjin, place emphasis on certain fields while making an overall development, and see to it that all our favorable conditions and advantages are made use of to the fullest possible extent. Based on this principle, we should adopt some and give up others, and refrain from seeking simultaneous development of all fields, trying to do everything by ourselves. We should select a group of products and trades, which conform to the overall demands of the plan, are superior to others and promising, and yield high economic results to society, should technically transform and develop them on a priority basis, should enable them to become our "fists" through which to expand lateral cooperation, and should make good arrangements for the coordinated production of Tianjin and other places throughout the country. We should both give full play to the advantages of Tianjin's enterprises as a whole and adhere to the principle of cooperation among the best.

During the implementation period of the Sixth 5-Year Plan, we have done a great deal of work in this regard and scored results in "production readjustment." We should continuously do a good job in grasping readjustment and be determined to eliminate a large number of products that are low in social benefit and economic returns and have no development future in order to enable the saved funds, raw materials, and energy resources to be concentrated on ensuring the production of fist products. The readjusted enterprises should actively develop products in short supply, accessory products, export products, and new-style consumer goods. Some enterprises should early make up their minds to turn their products into those whose production procedures can save water and energy and require intensive technology.

In readjusting enterprises, efforts should be made to uphold the principle of setting up reasonalbe economic cooperation and specialized technical coordination in order to gradually achieve specialization, cooperation, and association in industrial production through the work of readjustment, reorganization, and combination. In line with the work experiences gained in Beijing, Tianjin, and Shanghai Municipalities, it is generally realized that Beijing has many large enterprises, Shanghai has many specialized enterprises, and Tianjin has many "small" enterprises that, however, take up all production. We are low in specialized technology, and particularly low in basic technology among the industries and trades. The average standard of specialized technology among the five industries of casting, forging, heat treatment, electroplating, and molding is less than 10 percent, but some countries with developed economies generally have reach from 80 to more than 90 percent in this regard. The equipment capability of basic technical workshops among the municipal large plants of casting, forging, heat treatment, and molding is fairly large, but most of them are left unused. As a result, the production of both large and small plants cannot reach the batch process because of the low standard of specialized technology and no concentration on technical forces. Judging from the situation inside the enterprises, we have found low quality of products, a high rejection rate, much waste, and high costs; and judging from the situation in society, we have also found that the repeated phenomenon of blind and low-level production has taken shape after leaving a large volume of production capability unused on the one hand and also continuously establishing a large number of new plants and production units on the other. We should conduct readjustment and reorganization in order to enable the basic technical workshops of these large plants to render service not only for their own plant, but also for the front and the municipality as a whole. Efforts should be made to close the small plants, to stop the production of them, to merge their production with others, to transfer their production to other kinds, and to integrate their production with that of others. Only by conducting specialized readjustment, reorganization, and association; concentrating the necessary manpower, financial resources, and material sources on accelerating the pace of conducting technical renovations; establishing some central plants with a high capability for energy conservation, economic returns, and pollution prevention, and a large number of study and examination centers concentrated with talented personnel and equipment; and by regarding these centers as backbone units in setting up the network of specialized technical coordination can we bring about a marked change in the outlook of the basic industries and trades. Through several-years efforts in this way, we should turn the large number of existing and scattered enterprises of various industries and trades, which are "small" but have taken up all production into the specialized plants with close technical coordinations and should organize these enterprises into a new industrial complex and an enterprise group, as well as into a comprehensive superiority and a tremendous new production force.

In conducting specialized technical coordination, attention should be paid to adopting different measures and methods in line with the different situations in order to develop the economy in reasonable way. We do not mean that it is certainly better for us to divide the large plants into small ones without conditions, and also that the more we have achieved in the divisions of production and specialized technology, the more we have succeeded in our work. The relevant factors of restricting the process of reproduction are many. Therefore, we should undertake overall consideration and deal with them properly. How can we regard the economy that has developed in a reasonable way? In giving an answer to the question, we contend that, first, efforts should be made to markedly upgrade the quality of products; second, the batch process should be pushed forward and the cost should be lowered; third, commodity supply should be in a timely manner and service should be attentive and satisfactory. If we follow the principles mentioned in the answer above, we will certainly be more and more able to widen the road of conducting enterprise specialization, cooperation, and association.

5. It Is Necessary to Achieve Breakthroughs in Basic Links When Developing New Industries.

The development of new industries depends on the development of new materials, technical methods and technologies. Some comrades fail to see the unity of relations between the opposites of the basics, and the precision and the advanced. It seems to them that strengthening the basics means to neglect the precision and the advanced. This is a misunderstanding. In my opinion, if we are to truly stimulate and push the development of new industries, we should conscientiously put more efforts in renewing and renovating the basic links. We should note that the budding and development of all new industries result from the brand-new breakthroughs achieved in the basic links. This can be noticed in the micro-electronic and computer industry, optical fibers, laser technology, biological engineering, and so on. FIrst, new materials serve as a material foundation for new technologies, and more often than not as a precursor to the birth of new technologies. Continuous upgrading and updating of basic materials stimulate the development of new technologies in all different historical periods. Second, the development of any new product and new trade not only signifies the creation and improvement of a whole set of new technological principles but demands continuous creation and application of its structural design, experimental devices, technologies and equipment. Third, the establishment of new industries should be guaranteed through renovated traditional technologies, and brand-new technologies and methods. Therefore, we may say that the budding and development of new industries and the continuous creation and renovation of basic technologies, basic materials and basic component parts are complementary to each other.

In developing new industries, scientific research should be carried out ahead of others. We should vigorously and yet prudently select a group of scientific research tasks to develop the technologies that can be used on a long-term basis. We call this tackling technical difficulties and developing the precision and advanced projects. The state has designated many fields to be developed on a priority basis. Which fields should our Tianjin develop? We should "select the best to follow." Selecting "the best" means that we should base ourselves on our actual conditions and advantages and on our municipality's opinions on study of the countermeasures for the new technological revolution to select micro-electronic technologies, information technologies, new materials, biological engineering, laser technologies and marine engineering as our priorities for development. In developing new technologies, we should have sufficient scientific research forces, and have diligent efforts, tenacity and dashing spirit. We should work hard and ceaselessly for 3 to 5 years and should undertake vigorous thinking to expand our achievements with an irresistible force whenever a breakthrough is made. Only when scientific research is carried out first can designing, technical methods, and preparations for production proceed in an orderly and step-by-step manner, and only when a great number of scientific research findings are achieved can new industries be established gradually.

6. It Is Necessary to Strengthen Basic Work When Popularizing Modern, Scientific Management.

We have learned that some enterprises have backward technologies and still more backward management. Without advanced scientific management, the advanced technologies and equipment we have imported will not be able to perform their functions. Some imported production lines failed to operate normally when the foreign experts left. In addition to the failure to master certain technologies, such a problem should be attributed to poor management. Conscientiously improving and strengthening enterprise management is a very urgent task that can create benefits immediately when fulfilled.

In strengthening enterprise management, we should give guidance according to different situations. The small number of units with strong basic management work should advance toward modern management. The remaining large number of units with weak basic management should put more efforts to strengthen their basic work. Our municipality has paid attention to enterprise basic management work for many years, and has greatly strengthen it. Judging from the present situation, there are still many problems, and we are still far from accomplishing the tasks of comprehensively improving enterprise management and raising the quality of enterprises. The basic data of some enterprises are incomplete and inaccurate and their technological documents are incomplete as well. Some enterprises are lax in technical discipline and have failed to operate in line with the technical rules. We should exert great efforts to grasp the basic managerial work of enterprises such as the standard quotas, the original records, metrological inspection and survey, comprehensive statistics, the responsibility systems technical discipline, training of staff members and workers, and economic accounting, and strive to grasp these work well within a short period of time in order to lay a good foundation for enterprise management. Enterprises which have already begun to carry out scientific management and are prepared to promote modernized management should also continue to improve, replenish, and raise the standard of the present management of spadework in order to lay a stable and reliable foundation for promoting modernized management. While strengthening management over spadework, we should ensure that some enterprises are being managed in a modernized and scientific way. We should gain experiences through carrying out pilot work, gradually popularize the experiences, pay attention to actual results, and not seek an undeserved reputation.

In addition to grasping enterprise management, the departments in charge of comprehensive economic management should study ways to manage enterprises. It is necessary to resolutely foster the idea of serving the grassroots level and conscientiously improve the macroeconomic control of enterprises throughout the municipality.

It is Necessary to Strengthen the Building of Industrial Basic Links by Adopting Feasible Policies and Measures

Strengthening the building of the industrial basic links is a long-term arduous task. In addition to unifying thining and clarifying countermeasures, we should also have feasible measures to guarantee its success.

1. We should properly arrange for the building of the basic links while formulating the municipal "Seventh 5-Year" Plan and plans for industrial development.

Over the past few years we have failed to properly define the direction and major points of the municipal industrial development. Last year, the third session of the municipal people's congress adopted an overall urban plan, giving us an outline of the national economic development plan for the "Seventh 5-Year" Plan period. The fourth session of the fourth municipal CPC Committee also put forward demands on formulating such a plan. At present we should strive to study and formulate a comparatively good industrial development plan as soon as possible. How are we to formulate the industrial development plan of Tianjin? I have also touched on other issues. Today, I want to stress one more issue. That is, we should reflect the spirit of laying a good foundation in our development plans. In the past, when formulating plans, we gave more consideration to output and output value figures and quotas and less consideration to strengthening basic construction. At present in formulating development plans we should integrate the industrial long-term development objectives with the major points of development and basic construction in order to raise the development level of the entire industrial sector. For instance, judged from a long-term perspective, Tianjin should provide more advanced technology and equipment for the interior. In that way, we should reflect in our plans how to exert efforts to strengthen the relevant basic construction. During the "Seventh 5-Year" Plan period, we should maintain a rational economic growth rate and exert more efforts in laying a solid foundation. The municipal "Seventh 5-Year" Plan should make appropriate arrangements for capital construction, technological transformations, the importing of technologies, the joint research of technological problems, the readjustment of production set-up, the coordinated supply of key raw materials, the strengthening of research and experimental bases, and the training of competent persons, all of which are needed for building the basic industrial links. We should draw up relatively definite plans and arrangements for those questions of the 1990's, what degree of specialization, coordination, and association we will reach in industry through the efforts of readjustment and reorganization; how we can lay a solid foundation for the new systems through the reforms; what level our production means will reach as a reuslt of building kep projects and conducting technological transformations; how strong our self-renovation and self-development ability will become after importing, mastering, and applying advanced foreign technologies; how much the quality of our enterprises will be raised through strengthening the enterprise management; what level our basic technologies and methods will reach; what characteristics our basic component parts will have; what situation the production and supply of basic materials will create; and what measures we can adopt to ensure the realization of our projects.

2. We should formulate some supporting policies to create conditions for strengthening the construction of the basic links.

We should, first of all, give support to the fields of investment and credit. To lay a good foundation for our municipality's industry, we must put in considerably huge sums of funds, including a fixed amount of the foreign exchange funds. Capital shortage constitutes a serious difficulty in strengthening the construction of the basic links. How can we solve this problem? In addition to appropriately managing and using the existing funds and striving to raise the results in utilizing funds, we must try every possible means to open up more fund resources in many fields. We may consider releasing a fixed amount of funds from various local financial resources, and regarding them as funds for the strategic development of key basic projects. We can deposit such funds in banks for circulation, and then grant interest-free or low-interest loans to support the construction of the basic industrial links. Many basic links construction projects are unprofitable to the enterprises which undertake them, and the bank loans to such projects are not positive. Therefore, it is necessary to allocate some money to support the development of such projects.

In developing new projects and carrying out technological transformations, we should, in the field of making arrangements for funds, give overall consideration to the development of the finished products and the construction of the basic links. For instance, in terms of the investment in the mini-bus production project, if we invest a part of the money in casting and another part in modelling, the development of mini-buses can be integrated with that of the corresponding basic links. From now on, in developing capital construction, technological transformation, and import projects, we must make simultaneous designings for the construction of the basic links and the project as a whole, build them and give acceptance tests simultaneously, and instruct the pertinent departments to conduct examination. Of course, this is a relatively complicated thing, and we should not seek simplicity and uniformity in all affairs. Those units which can only make arrangements for the finished products but not the construction of the basic links due to some special reasons should make up for it afterwards. If possible, we should simultaneously design, build, and give acceptance tests to the basic links and the items as a whole. Another case is that when both the basic links and the finished products are run by an enterprise, it is possible for it to give unified consideration in developing a new project. But, if the basic links and the finished products are run by different enterprises, it will be difficult to do so.

Such a problem should be solved with the concerted efforts of companies, bureaus, and the municipality. Projects related to the basic links which require long construction periods should be granted low-interest or interest-free loans, and the deadlines for loan repayment should be properly extended. Before enterprises repay their loans, we should properly reduce or exempt their taxes, and allow them to repay their loans with the profits they earned. In the use of the portion of the foreign exchange that we are entitled to use after having our authority expanded, we should earmark a certain amount for renovation projects which yield slow results but which can create great economic benefits to society.

Second, certain preferential treatment in pricing and taxing should be given. In the production of a certain product, if the benefits from the production of the major part is a little too high and that from the production of accessories, which require basic technical methods, is a little too small, we should make adjustment in a planned and step-by-step manner, starting with the adjustment of some evidently irrational price parrities. We should implement the policy of higher price for better equality, and change such a situation as calculating the value of cast products by tons instead of by the complexity of the technical methods required. Specialized plants and units which earn little profit should be given tax reduction or exemption, or be allowed to institute the contract system in profit and tax payment. In view of the fact that some enterprises related to the basic links earn rather small profits, we may leave all the depreciation funds and self-retained portion of profits to such enterprises or trades for use in technical transformation instead of pooling them together for use in a centralized way.

Third, many staff members, workers, and cadres engaged in the work related to the basic links, in particular basic technical methods, have made many contributions to their work under rather difficult conditions for years. We should strive to gradually improve their labor conditions, study and readjust well the distribution policies of enterprises, and conscientiously implement the principle of distribution according to work. Methods may vary according to different situations. Some may institute the piece rate wage system, and others may implement other forms of the economic contract responsibility system.

3. We Should Do a Good Job in the Development and Cultivation of Talented People in a Planned Manner.

A lack of talented people on the industrial front is an important factor directly affecting future industrial construction. This problem is all the more conspicuous in the departments and units related to basic links. According to statistics, specialized personnel engaged in casting, forging, and plating, the three major techniques in the municipality's machinery and electronic trades, account for 1.6 percent of their total staff and workers. If we divide these personnel equally to all plants, each plant may have only one half of the technical personnel. Among the electroplating workers of the electroplating plants run by towns and townships, who account for more than a half of the total electroplating workers of the municipality, none of them are engineering and technical personnel acknowledged by the state. If such a situation is unchanged, it will be impossible to improve the level of basic links even if we have funds and equipment.

What makes the situation of a lack of talented people worse is that some personnel are not properly used. At present there are many jobs that cannot be done because of a lack of technical personnel, and yet there are many technical personnel who cannot find jobs. In many of our trades related to the basic links, the engineering and technical personnel engaged in the job they are trained for account for a mere 50 percent. The distribution of these personnel is also very uneven. The engineering and technical personnel engaged in molding work are largely working at defense industrial units, units subordinate to ministries, and units of the First Machinery Bureau. However, 80 percent of the products of the units under the second light industrial bureau need moldings, and these units have very few specialized technical personnel, and even fewer engineers. We should give full play to the role of the scientific and technical workers. First, we should let them assume posts where they can display their role and conscientiously solve the problem of assigning them to posts which are unrelated to their specialities. Second, we should organize a rational transfer of competent personnel by adopting a planned transfer method, and readjust and organize the specialized personnel to form technical superiority and strength for the development of key products in line with the readjustment of the structures of industries, enterprises, and products. Through adopting economic methods, we may organize scientific and technical forces in society and transfer them to places where major and comprehensive production, scientific, and technical projects are being carried out. Third, we should continue to organize the five forces to jointly tackle key problems, pool the scientific and technical forces in and outside the municipality together, promote strong points and avoid shortcomings, create favorable conditions, and make more contributions to studying the major problems affecting the municipal economic and technical development.

We should give consideration to achieving prosperity in the 1990's, and foster and train the competent personnel in a planned manner. In training specialized technical personnel, we should attach primary importance to make them revolutionary, and conduct education on "ideals, morality, culture, and discipline," and on professional ethics among them. Universities, and colleges, as well as the secondary specialized technical schools should proceed from the needs of developing Tianjin's industry and economic construction, conduct necessary readjustment and reforms in the establishment of special courses, the teacher contingents, and the teaching content and methods, and strive to train more qualified scientific, technical, and managerial personnel. Tianjin's local colleges and schools in particular should share the work of the state key institutions and schools and of the institutions under the ministries, grasp the major points and run these schools with distinguishing quality. For instance, we are very short of competent personnel in the machinery and electronic, and instrument manufacturing sectors, especially in the technological sector. In the establishment of specialized courses, we should strengthen the training of personnel in these sectors. We may give consideration to enrolling through examinations some factory workers who have practical experiences and senior high school or secondary specialized school educational standards and train them to gear to the needs of the municipality. We should strive to raise the cultural and technical levels of the broad masses of in-service cadres and workers in a planned and step-by-step manner and purposefully train different personnel with different training content and methods. As for those scientific and technical personnel who have been working in these fields for a long time, we should train them in a planned manner in order to update their knowledge and technology. We should also train those technical personnel who have changed their posts and served as cadres in charge of economic management work in order to improve their management knowledge and skills so that they will become experts in technology and management and new-type specialized technical cadres who are well versed in technology and management. It is also necessary to conduct education on general and technical knowledge and modern management among the leading managerial personnel who have been engaged in economic management work for years and whose cultural standards are comparatively slow. We should open up more channels for training competent personnel, and, in addition to fully displaying the role of the various regular institutions and schools as well as spare-time schools, pay attention to displaying the role of the federation of the societies of social sciences, the association for science and technology, the association of enterprises, and other mass organizations so that various competent personnel will emerge from all fields in a great number.

Comrades: A new year has already begun. During this year, the municipal CPC Committee and government have prepared to concentrate more energy on grasping the municipality's industrial construction. We should work in a down-to-earth manner, quietly immerse ourselves in hard work, find a way for industrial development suited to Tianjin's situation, and strive to open up a new situation in the industrial sector.

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[Article by Wang Dacheng [3769 1129 2052] and Wu Hongguang [2976 5725 0342]: "Several Questions Concerning the Strengthening of Macroeconomic Management:--edited by Pan Shucheng [3382 6615 3397]]

[Text] At the end of last year, several major problems emerged in the economic life of our country. These were inflation in fixed asset investments, loss of control over consumption funds, over-issuance of banknotes, and a drastic decline in foreign exchange holdings. People began to pay close attention to strengthening macroeconomic control. Although the situation has currently turned for the better, we are still looking for a way to establish an effective macroeconomic management system.

At the moment, Western countries are maintaining a slow economic growth rate. In 1984, the economic growth rate of the United States was 6.9 percent, while that of Japan was 5.8 percent. In the Soviet Union and Eastern European countries, economic conditions also improved to a certain extent. In the field of macroeconomic management, all these countries can provide certain worthwhile experiences for us to follow. This article will discuss several problems in regard to strenthening our country's macroeconomic management in light of the experiences of foreign countries.

Placing the Focal Point in Macroeconomic Management on Achieving a Balance Between Social Gross Supply and Social Gross Demand

For many years we have emphasized the correct handling of the proportionate relationship between agriculture and light industry, and heavy industry, and the proportionate relationship between accumulation and consumption, and have set the concrete demand of achieving balances in the four large sectors of finance, credits and loans, material resources, and foreign exchange. Western economists believe that their objective should be to strive for a full employment rate, as far as possible for only a slight degree of currency inflation, and for prolonged growth rate and a balance in international payments. We believe that although socialism and capitalism are radically different from each other in nature, they agree completely with each other in that in macroeconomic management they both seek the realization of a balance between social gross supply and social gross demand. Based on this, we should plan and set up a macroeconomic management system and should no longer endeavor as in the past to suit everything to unrealistically high targets and high speed.

In our opinion, to do a good job in macroeconomic management in our country and to realize a balance between social gross supply and social gross demand, the key lies in controlling the scale of investment in fixed assets, particularly in capital construction. This is because capital construction investments have all along occupied a predominant position in the balancing of our country's finance, credits and loans, material resources, and foreign exchange. For example, in 1984, of our country's 146.5 billion yuan in financial expenditure, that devoted to capital construction amounted to up to 47.86 billion yuan, or 32.6 percent, occupying first place in financial expenditure. Of the gross amount of bank loans, capital construction loans likewise occupied a large proportion. As for materials and foreign exchange, a sizeable portion of each was taken up by capital construction.

Western economic theory holds that investment occupies an exceedingly important position in economic activities. It is not only the starting point of production and reproduction, but is also expected to generate a series of direct and indirect effects. Hence, governments of various countries are exceptionally concerned with the effects and influences of investments.

Over the past 30 years and more in our country, due to the excessively large scale of capital construction for a prolonged period, economic development has failed to achieve the results it should have obtained. As for the economic causes, it may be said that the several major readjustments made were a result of the excessively large outlay in capital construction. In recent years, the "investment hunger disease" has become aggravated daily. The Sixth 5-Year Plan originally called for a gross volume of capital construction investments amounting to 230 billion yuan. This target had already been exceeded during the first four years, and it is anticipated that the results of the enforcement of the Sixth 5-Year Plan will show an excess over the planned target of over 40 percent. During the 30 years prior to 1980, in only 3 years--1958, 1970, and 1978--were capital construction investments found to have exceeded the preceding year by 10 billion yuan or more. But in recent years, for many years in succession, capital construction investments have each year exceeded the preceding year by 10 billion yuan. The extent of the increase has greatly surpassed the country's tolerance level financially and economically.

Inflation in the scale of capital construction has brought with it many problems. First of all, it has inappropriately stimulated production's superspeed development, bringing about the evil consequences of high speed, high consumption, poor quality of products, and low economic benefits. Second, it has intensified the rise in commodity prices. Because roughly one-third of the capital construction funds are usually directly converted into consumption funds, inflation in the scale of capital construction not only brings about a state of stringency in the supply of the means of production such as energy and raw materials, but also causes the means of consumption to rise in price in a chain reaction. More importantly, in the initial period of the reform of the economic structure, if relatively plentiful financial power and material resources are wanting, then no ground is left for maneuvers and readjustment.

It is true that keeping the growth of consumption funds within reason has an important significance in regard to the realization of the equilibrium between social gross supply and social gross demand, but in comparison with the control of capital construction investments, it takes second place. Control of the scale of capital construction will make it relatively easier to bring about a balance between social gross supply and social gross demand.

In controlling the scale of capital construction, it is important to have a unified understanding from top to botton and overcome the ideas of being eager for quick success and instant benefits and seeking big and quick accomplishments. At the same time, it is necessary to take effective measures in administrative, economic, and legislative spheres. For example, letting the Planning Commission "take charge" of the examination and approval of capital construction projects, temporarily withdrawing power upward and allowing only the State Planning Commission and the planning committees at provincial levels to have the power of examining and approving capital construction projects; raising the interest rates on capital construction loans; investigating and affixing the responsibility of individuals for erroneous policy-making in capital construction; and so on.

Strengthening the Scientific Nature of Planning Work

In our country, planning work is the nucleus of macroeconomic management. The many errors in past economic work may frequently be traced to the defects in planning work. Hence, in strengthening macroeconomic management we must improve planning work and heighten its scientific nature. Although capitalist countries do not follow a planned economy, their methods of doing governmental intervention work are well worth our reference. In 1955, the Japanese Government, following completion of economic recovery, formulated in succession nine medium-term and long-term socio-economic development plans, including a "5-year economic self-support plan," (1956-1960, "doubling the national income [word indistinct]," (1961-1970, "New 7-year Socio-economic Plan" (1979-1985), and so on. These plans were mostly completed satisfactorily and have helped in effectively promoting Japan's social and economic development. These medium-term and long-term plans of Japan generally possessed the following special features: 1) Embodying concrete and clear-cut plan targets; 2) Taking international and domestic advantageous and disadvantageous conditions into consideration; 3) Mobilizing financial groups and enterprises to take part in compiling government plans; and 4) Making the guidance throught of the plans aim at seeking real interest benefits and not necessarily speed or a show of impetus.

Among the socialist countries, Hungary's planning work has some special characteristics. Hungary's planning commission is formed by the heads of the economic departments, more or less like the standing committee of a ministers' meeting. The economic reform in Hungary has continuously reduced the scope of the central government's mandatory plans but fully respected the law of value and, on the basis of extensively using such economic levers as prices, wages, and taxation, widened the scope of guidance plans. More recently, the Soviet Union has also stressed improvement in its planning work. They believe that Lenin's idea of converting the state planning commission into a scientific economic organization formed by congregating together noted scientists and principal specialists should be realized, and that the plans should give a prominent place to quality targets reflecting the growth of the labor productivity rate built on the foundation of the effective use of resources, a large-scale renovation of products, and scientific and technological progress.

We believe that based on our country's conditions, our planning work should be improved as follows: 1) Conversion from principally working on fixed targets, diversified investments, and grasping main projects to mainly stressing the study and formulation of strategies, targets, and major policies for socioeconomic development; 2) Changing the practice of initially determining the growth speed and then turning back to work out the other targets to starting from society's actual needs and feasibility of the plan and then determining the ratio and speed of the development of the various departments; 3) Having planning work not only determines the targets, but also maps out the measures to realize and control the targets, without leaving too large a gap or having the disparity between reality and the plan be too large; 4) Based on the principle of controlling the big issues firmly and well and liberalizing and easing control on the minor issues, reducing the scope of mandatory plans while enlarging the scope of guidance plans and regulation by market mechanism; but, be it guidance planning or mandatory planning, respecting the role of the law of value and fully using economic levers; 5) Overcoming subjectivism and the tendency to do things at will, paying close attention to market and information feedback, and stepping up economic forecasting work; 6) Rectifying the practice of a small group of people "working behind closed doors" and broadly mobilizing the enterprise circules and theoretical circles to actively participate in the formulation of plans, and, if necessary in the formulation of important plans, inviting the whole people to take part in the discussions just like the former case of the people's participation in the discussions on the Constitution; 7) Having the formulation and adoption of improtant plans go through a legal procedure, and in the event of serious errors, investigating the legal responsibility of the relevant departments and their responsible personnel; and 8) Improving the planning methods and improving the quality and standard of the personnel engaged in planning work, subjecting the planning personnel to a rigid system of rewards and punishment, and highly rewarding those who have made outstanding contributions.

Putting the Economic Regulation Functions of Financial Receipts and Payments Into Full Play

Appropriately readjusting the composition and direction of fiscal receipts and payments is an important measure for doing a good job in macroeconomic management.

Certain Western economists believe that tax collection is only a part of the whole taxation policy and that there is still another very important part which is the problem of building up a tax source. In 1984, the collection of individual income tax in the United States accounted for 44.44 percent of all tax collection, while in Japan it was 40.42 percent. Despite collection of the individual income tax occupying first place in tax collection as a whole, in the final analysis, the source of individual income tax comes from the enterprise. Hence, in taxation, the American and Japanese Governments have given favorable consideration to the enterprises. According to statistics, the proportion occupied by corporate income tax in the aggregate tax collection is less than one-third in Japan and only 15 percent in the United States. When a government enforces a low tax policy for corporations, it seeks to enable the enterprises to speed up the renovation of their equipment and increase their investments of a productive nature, thereby stimulating economic development. Hence, in the final analysis, this reflects the demand for an increase in capital.

Recently, the United States Government has formulated a new tax revision program, according to which both individual income tax and corporate income tax will be greatly reduced. The highest rate for corporate income tax will be reduced from 46 percent to 33 percent. Thus, although the government's tax receipts will be temporarily reduced, because tax reduction will increase the individual's income and the corporation's income, this is tantamount to increasing savings and investment. Ultimately, the growth of the economy will compensate, and in fact surpass, the losses from tax reduction.

The important parts of the fiscal budgets of the American and Japanese Governments are devoted to social expenditure, which amounts to roughly 40 percent of the whole. They include expenses for public welfare work such as social welfare, social insurance, and public health and education. This is the government taking care of society and not the enterprises taking care of society. Thus, on the one hand, it enables the enterprises to concentrate on production and operations activities and, on the other hand, through cultivation of culture, technology, and the physique of the individual, it prepares the ground for development of the productive forces for the benefit of the enterprises. The American and Japanese Governments' financial expenditures for developing the economy have a major purpose in each and every period. For example, in the 1950's, Japan adopted the "slanting type" strategy, emphasizing the development of steel, coal, heavy, and petrochemical industries. Later it stressed the development of the machine-buidling industry and electronics industries, achieving notable results in all cases.

Based on foreign experiences, when using this economic regulation measure of fiscal receipts and expenditures, we believe that we should pay close attention to the following problems:

First, we must overcome the purely financial viewpoint. Finance and economics are closely related to each other. Economic development relies on financial regulation and support. In the final analysis, an increase in financial receipts depends on development of the economy. Hence, financial departments should not be interested only in taking in money, but should think of how to expand and build financial sources. Basically, the viewpoint of developing production must be cultivated. At present the profit retention level of our enterprises is low, their equipment is antiquated, their skills are backward, and they lack the necessary financial power to achieve self-transformation and to expand reproduction. The reasons for all this may be traced to the practices in the preceding years of our intake of money from the enterprises being too great and the support given to them being too low.

Second, the taxation system must be perfected. At present our country has enforced the system of collecting taxes in leiu of profits and construction of the tax system has made some progress. But viewed as a whole, the taxation system is still imperfect. Some taxes which should be collected are not being collected while certain taxes that should not be collected are being collected. An example is the collection of individual income tax. Although collection of the tax is stipulated in the regulations, the regulations are not being strictly enforced. Many of the individual merchants and the so-called "10,000-yuan income households" who should pay taxes are not being taxed. Another example is the regulation tax. In name it is meant to offset the enterprises' differential receipts due to irrational prices. In reality, it is like "whipping the fast ox." This kind of regulation tax should be speedily abolished.

We should rationally arrange for our financial payments. At present the financial receipts of our country are still not great. Between the demand for funds and their availability, a rather large problem still exists. Hence, special attention should be paid to handling well the relationship between production and construction and improving the people's standard of living. When we look at the past, we may find that certain of the so-called major construction projects did not seem to have been so utterly necessary and correct. Hence, from now on, large fiscal payments must be first subjected to cautious deliberations.

Putting the Key Role of Banks in Economic Activities Into Full Play

Lenin once said: "Large banks are state organs which are urgently needed in our realization of socialism" devoid of large banks, socialism cannot be realized." ("Selected Works of Lenin," Vol 3, pp 307-308)

For a long time, we have not paid sufficient and important attention to the role of banks. The main existing problems are:

1. The banking business is not developed. This is principally manifested in the following: Banks do not have a high status in economic management, the banking network is not wide enough, the banks do only a unilateral type of business, emphasizing only cash control and not management of credits and loans or issuance of banknotes. They neglect the open up deomestic money markets or develop business and dealings in negotiable securities.

2. There is lack of a scientific basis for the issuance of banknotes and the floating of loans. Both in 1983 and 1984, the issuance volume of banknotes greatly exceeded the extent of the growth of the social total output value and a great portion of it was irrational. The blind and unguided nature of loans was also extremely serious. In 1984, the total amount of the various kinds of bank loans granted increased by 28.9 percent over 1983. In December alone, the amount of increase in bank loans was 48.4 percent of the amount of increase

for the whole year. Such an irrational phenomenon has greatly impeded the development of the national economy.

3. The banks have suffered overly great interference from all sides and generally lack an independent nature. At present, the banks in our country have not yet played the role of financial center or accounting center or supervisory center, basically having the nature of being a "big cashier." Moreover, the banks are helpless before various improper practices such as recklessly overdrawing from the banks and so forth. Originally, the several tens of billion yuan of funds expended on the purchases of grain and cotton should have been paid by the finance department, but now they are first advanced by the banks, thus using up a large portion of the bank funds.

We believe that for the sake of accelerating the development of our country's planned commodity economy, it is necessary to elevate the status of the banks and put the role of banks in macroeconomic management into full play. Only through the banks grasping the aggregate volume and direction of the flow of social funds, only through the banks grasping the conditions in respect of the production, distribution, and circulation of whole society's commodities, and only through the banks exercizing control over the issuance of banknotes and regulation of the interest rates so as to guide the direction and speed of the economic development is it possible, from now on, for our national economy to develop in a sustained, stable, and coordinated manner and is it possible to raise our management and control of the macroeconomic to a new level.

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ECONOMIC MANAGEMENT

PRC JOURNAL ON ROLE OF ENTERPRISE PARTY COMMITTEE

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[Article by Sun Fakui [1327 3127 1145] and Zhao Yuhui [6392 1342 6540]: "The Role of Enterprise Party Committees as Guarantors and Supervisors"--edited by Liu Qichang [0491 0366 0788]]

[Text] Since the implementation of the factory director responsibility system in our enterprises, the party committees there have switched from functioning as the organizations exerting overall leadership over the production, operation, administraton and management to functioning as those conducting the guarantee and supervision work. This is a major reform in the enterprise leadership system and in the work of the party committees. As the work in the experiments of this reform deepens and develops, many new problems have cropped up in the process of enterprise party committees conducting guarantee and supervision. How are we to combine theory with practice and thus conscientiously study the new situation, explore new paths, solve new problems, give further play to party committees' role as guarantors and supervisors and ensure the implementation of the factory director responsibility system? This is a new issue in strengthening and improving the leadership of enterprise party committees. This article is an attempt to give some rought views on it in the light of the practice of the experiments in Dalian City.

I. Meaning of Guarantee and Supervision

What is guarantee? Our understanding is: To guarantee means to take earnest responsibility and ensure actual implementation. The role of a guarantee is a method embodying the leadership role of the party. What we mean by guarantee here mainly refers to the responsibility of our party committees. This mainly means that politically, enterprise party committees must guarantee the socialist orientation of the enterprises, guarantee the implementation of the party's line, principles and policies and the state laws and decrees in the enterprises, guarantee the smooth transmission of the orders in the production and administration command system headed by the factory directors, and guarantee the all-round fulfillment of the state plans and the various production tasks of the enterprises.

What is supervision? Supervise means inspection and urging. The role of supervision is a kind of power that is granted to enterprise party committees to give full play to their leadership role. It mainly means that the party committee of an enterprise should conscientiously supervise the thoughts, work, and work style of all the cadres in the enterprise including the factory director, enable the enterprise to correctly implement the various principles and policies of the party and state, correctly and satisfactorily handle the relations between the interests of the three parties--the state, the enterprise, and the staff and workers as individuals, and correctly and satisfactorily handle the relationships between the party organizations, the management, and the masses inside the enterprise, and thus ensure that all the economic activities of the enterprise proceed along a socialist orbit.

Some comrades hold that since the implementation of the factory director responsibility system, the party committees have been deprived of their power, the party's leadership has been weakened, and "guarantee and supervision are merely empty talks." This is a one-sided view. In fact, guarantee and supervision are a unity between responsibility and power. They are not only the party committees' important responsibilities, but also their very great powers. Only when we are very clear about the party committees' responsibility and only when we have fostered correct guiding thought, can we conscientiously exercise that power. Similarly, only when our party committees fully exercise their power of office can they effectively perform their office duties. From this we can see that guarantee and supervision are glorious responsibilities and very great powers that have been assigned to our enterprise party committees. They do not weaken the party's leadership, but on the contrary, they strengthen and improve our party's leadership over the enterprises. Precisely as Comrade Peng Zhen pointed out. "The guarantee and supervision conducted by party committees over the enterprises are very great powers. Guaranteeing the fulfillment of state tasks and guaranteeing and supervising the implementation of the party's principles and policies in our enterprises embody the party's leadership. We should never look down upon this." [RENMIN RIBAO, 25 July 1984]

II. Relationship Between Guarantee and Supervision

At present, quite a few units have reflected that "it is easy to guarantee, but hard to supervise." Some have paid attention only to guaranteeing, but not to supervising, but others have stressed supervising only and neglected guaranteeing. One of the major reasons for the emergence of such a tendency is that they fail to correctly understand or satisfactorily handle the relationships between guaranteeing and supervision. Guaranteeing and supervision are an integrated unity, and are two aspects of one issue; therefore, neither of them can be dispensed with. /If we pay attention only to guaranteeing but not to supervision, the guarantee is a passive one; if we pay attention only to supervision but not to guaranteeing, the supervision will be an act to find faults./ Therefore, our party committees must conduct positive supervision and an effective guarantee. When they make the guarantee, they should not be passively subordinate to the factory directors and even less blindly follow the factory directors. On the contrary, they should conscientiously support the factory directors in the exercising of their authority of centralized direction over production and operating activities, guaranteeing and supervising the implementation of the party and state's various principles and policies, and striving to fulfill the enterprises' tasks of building the two civilizations. Supervision does not mean that party committees find fault with factory directors while the latter are doing their work. It is supervision that is carried out throughout the process of decisionmaking and the implementation of the decisions. They should give much help beforehand, but should give less criticism after things have been done. By so doing they will turn the supervision afterward into prevention beforehand, and do their best to prevent errors in the factory directors' decisions.

According to the experience gained by some experimental enterprises, in order to correctly and satisfactorily handle the relationships between guaranteeing and supervising, the party committees should persist in doing three aspects of work together with the factory directors. First, in doing ideological work, the party committees should be of the same mind with and cooperate with the factory directors though there is a division of labor between them. The party committees should let factory directors have a free hand in doing work related to production, operations, administration, and management, but should not be on-lookers. They should be concerned about the work, but should not interfere in it; should support it but should not arrogate power to themselves; should be advisors, but should not make decisions; and they should pay attention to the work that the factory directors have neglected, but should not hinder the directors' work. Second, they should work for the same goal as that of the directors' so that there is a division of labor between them and the directors, but their work is not separated from the directors' work. They should conscientiously carry out ideological and political work centered around the production and operations of the enterprises. They should give full play to the party organizations' role as the fortress of struggle, and the party members' role as pioneers and models. They should earnestly ensure the implementation of the factory directors' decisions and the fulfillment of various tasks. Third, they should exercise control jointly with factory directors in the implementation of policies. They should always maintain a high degree of political identity with the CPC Central Committee [to] be able to proceed from reality, and be good at turning the party's principles and policies into the conscious acts of the vast number of staff and workers.

III. Major Contents of Guarantee and Supervision

Guaranteeing and supervising does not mean that the party committees should handle everything big or small, but that they should handle the major issues related to the orientation and the overall situation. Judging by most of the experiments that we are carrying out in our enterprises, there are roughly the following seven aspects to guaranteeing and supervising: 1) guaranteeing and supervising the correct implementation of the party's line, principles, and policies and the state's laws and decrees, and adhere to the socialist orientation of the enterprises; 2) guaranteeing and supervising the implementation of the directions and stipulation of the upper levels and the implementation of the various rules and regulations of the enterprises; 3) guaranteeing and supervising the all-round fulfillment by the enterprises of their production and operating plans and other tasks and strive to raise the economic results of the enterprises; 4) guaranteeing and supervising the correct exercising of the factory directors' authority, the teaching of cadres, party members, and the masses of the staff and workers to obey the direction of the management headed by the factory directors, and the smooth implementation of the factory directors' policy decisions and directions; 5) guaranteeing and supervising the factory directors' selection and employment of administrative cadres at various levels of the enterprises in accordance with the standards of the "four transformations"; 6) guaranteeing and supervising the staff and workers in exercising their power of democratic management and giving play to their role as masters; and 7) supervising the cadres in observing the financial and economic regulations, correcting the various unhealthy practices such as violating the law and discipline, and guaranteeing that there is no encroachment on the state's economic interests.

IV. A New Concept Should Be Fostered in Order To Do a Good Job of Guaranteeing and Supervising

We should see that because of the prolonged implementation in our enterprises of the leadership system of the factory director responsibility system under the leadership of the party committees, many old ideas and concepts have struck deep roots. We should not underestimate this. For example, some comrades think that "when guaranteeing and supervising are carried out, the party committees will have nothing to do." A small number of comrades even hold that "the party committees have no power and, therefore, cannot supervise." An even smaller number of comrades even resent the practice of correcting the idea of "the party secretaries being leaders No 1, and the factory directors being No 2." They hold that this practice "reverses the normal order." Fundamentally, this shows that the old ideas and concepts have not yet been removed. Therefore, only by breaking the old concepts can we change the views of the leadership beforehand and can we adapt ourselves to the demand of the factory director responsibility system and lay a sound ideological foundation for doing a good job of guaranteeing and supervising. According to our city's practice, in the process of transforming the views of the leadership, we should focus on "breaking four old ideas and establishing four new ones." In other words, we should break the idea of "party committees being the cores of enterprise leadership" and establish the idea of the party committees playing the role of guaranteeing and supervising the work of production, operations, administration, and management; we should break the idea of "party committees exercising centralized leadership and their secretaries making the decisions," and establish the idea of party committees taking the initiative to coordinate with the management and do a good job of coordinating internal relationships; adn we should break the idea of "power being indispensable to having prestige," and establish the idea of turning the party's principles and policies into the staff's and workers' conscious actions through vigorous ideological and political work. Only by so doing can we radically break the ideas that have emerged and become firmly established because of the prolonged implementation of the factory director responsibility system under the leadership of the party committee and adapt our minds to the new leadership system.

V. In Order To Do a Good Job of Guaranteeing and Supervising, We Should Draw a Clear Demarcation Line Between Participation and Interference

Some party committee secretaries worry that the supervision conducted by the party committees may unfortunately become interference and thus hinder the administrative command of the factory directors. As a result, they dare not participate in what they should participate in. Some factory directors smile at guaranteeing, welcome supervision, and even hold that in exercising a factory director's authority, the factory director should act in the manner of the three-step shot in a basketball game, in which those who touch the other player make a foul. This shows that it is imperative to draw a demarcation line between participation and interference. We say that after the implementation of guaranteeing and supervising, the party committees do not direct, take on, or interfere with the work of production, operations, administration, or management and should not hinder the factory directors' centralized leadership and full-power responsibility. This is correct, but this by no means shows that we think that the party committees should not be informed of and concerned about or take party in these activities. Drawing a clear demarcation line between participation and interference is shown in the following: First, the correct guiding thoughts. Does the party committee support the factory director's work with complete enthusiasm through its strict supervision and thus enable the enterprise to develop along a socialist orientation or does it find faults with the work of the management? Second, the nature and scope of the matters that the party committee participates in. Does it participate in major issues related to the orientation, policy, and the all-round situation, or does it participate in the daily work of production and administration? Third the means of supervision. Does the party committee give guidance to the various economic activities through internal means and thus make these activities conform to the party's and state's principles and policies or does it give orders and directly direct these activities?

In order to give full play to party committees' role of supervision, the factory directors should take the initiative to deliver the major issues related to the work of production, operations, administration, and management of the enterprises to the party committees for discussion. This does not hinder the factory directors from exercising their authority. On the contrary, it supports and provides a guarantee for the factory directors in exercising their authority. What major issues of an enterprise should be discussed by the party committee collectively? We think that in the main there are the following seven issues: 1) Development orientation, management policies, and long-term plans of the enterprise; 2) annual plans (including plans related to production, sales of products, development of new products, and product quality) and major technological transformation plans of the enterprise; 3) the formulation, revision, and abrogation of major rules and regulations of the enterprise; 4) the establishment of administrative and management organizations and relatively large-scale reorganizations or dismissals of the labor force; 5) appointments and removals of cadres at and above the middle level; 6) the establishment of joint ventures with foreigners and the import, development, and transfer of technology; and 7) plans to readjust wages in the enterprise, plans to promote staff and workers, plans on bonus distribution, plans to award and punish staff and workers, and plans on the use of collective welfare funds, and other relevant major issues. Of course, in discussing these issues, the party committee only puts forth its views and suggestions, but does not make decisions. Some comrades asked: What if a small number of factory directors act arbitrarily, refuse to accept supervision, abuse their authority or violate the party's and state's principles and policies and thus cause serious losses? We hold that the party committees are fully empowered to supervise such factory directors and to make suggestions to the upper-level responsible departments on the necessary punishment.

VI. In Order To Do a Good Job of Guaranteeing and Supervision, We Should Correctly Handle the Relationship Between the Party Committee and the Management and the Relationship Between the Party Committee Secretary and the Factory Director

When we implemented the factory director responsibility system under the leadership of the party committee in the past, the party committee was the core of the enterprise leadership. But since we implemented the factory director responsibility system, we should no longer mention the idea that the party committee is the core of the enterprise leadership. This is because the factory director is now the representative of the legal person, shoulders all-round responsibility, and exercises centralized leadership over the work of production, operations, administration, and management of the enterprise. If we continue to regard the party committee as the leadership core, then the implementation of the factory director responsibility system will be empty talk. However, we should not therefore draw the conclusion that the factory director is the leadership core of the enterprise and that the factory director as an individual has the final say in the enterprise. What then is the relationship between the party organization and the management in an enterprise after the implementation of the factory director responsibility system? We hold that, from the point of view of the inner-party activities, the relationship between the factory director and the party committee is the relationship between an individual and his organization. From the point of view of the work, it is a relationship of the factory director shouldering the responsibility and the party committee supervising him. In the sphere of ideological and political work, the party committee shoulders the leadership responsibility, but in the spheres of production, operations, administration, and management, the factory director shoulders the leadership responsibility. They respectively play their centralized leadership role in the party committee management system and the administrative and managerial system. They differ from each other and link with each other. They have the common goal of struggle, both serve the better implementation of the enterprise's policies and the realization of its goals, and both shoulder the double task of building the socialist material and spiritual civilizations.

In guaranteeing and supervising, we should also correctly understand and handle the relationships between the party committee secretary and the factory director. They key to whether the relationships between the party organization, management, and masses of staff and workers are straightened out and whether the relationships between the party committee secretary and the factory director are satisfactorily handled. Therefore, while rejecting the idea that "party secretaries are leaders No 1 and factory directors are No 2," we should be clear that the secretary and the director are respectively the major leaders of the party and management systems in the enterprise. Neither of them leads the other. Each is in charge of his own duties, closely coordinates with the other, and supports the other. There are the new-type work relationships between them.

When we implemented the factory director responsibility system under the leadership of the party committee, the principal aspect of the contradiction was often the party committee secretary. But now, since the implementation of the factory responsibility system, the principle aspect of the contradiction has often been the factory director. As a party committee secretary, he should back up the factory director satisfactorily as well as facilitating the exercising of the factory director's authority. The party committee secretaries in some units have consciously adhered to the "three principles." Do not scramble for power in the ideological sphere; do not overstep their power in doing their work; and do not have a work style of acting arbitrarily. At the same time, they pay attention to satisfactorily handling the "three relationships": When the factory directors encounter difficulties and resistance in their work, the party secretaries should closely coordinate with them and conscientiously help overcome the difficulties; when the factory directors and party secretaries differ in their opinions, they should make allowances for each other in the light of the spirit of paying attention to principles in dealing with major issues and paying attention to mutual accommodation in dealing with minor things, respect each other, and strive to unify their opinions through repeated discussion; and when the factory directors have committed mistakes in their work, the secretaries should sum up experience jointly with them, have the directors publicly correct their mistakes and pay attention to protecting the directors' prestige. In the Dalian Towel Factory, the newly-appointed factory director was only 34 years old and regarded the relationships between himself and the old party secretary as those between a young "sister-in-law" and an old "father-in-law." He worried that he could not be able to do his job satisfactorily. Therefore, the secretary of the party general branch time and again had heart-to-heart talks with the factory director, encouraged him to have a free hand in doing his work and formulated four stipulations on handling the relationship between the secretary and the director: namely, ideologically, they should exchange views with each other, unify their understanding and have identical views; in doing their work, they should support, closely coordinate with, and vigorously cooperate with each other; concerning their work schedules, they should make reasonable arrangements to make their work correspond to each other's and prevent scheduling conflicts, in shouldering their respoknsibilities, they should both be strict with themselves, shift merit to each other, and be first to shoulder the responsibility for mistakes. As a result, the factory director dares to exercise his power and has learned how to use his power, and the relationships throughout the factory have been straightened out and all the people there are of the same mind. In the first half of this year, the factory more than doubled its realized profits compared with the same period last year.

VII. In Order To Do a Good Job of Guaranteeing and Supervising, We Should Have the Guarantee of Regulations

During the experiments, many enterprises have learned that in order to establish a new type of relationship between the party organization and the management and in order to give full play to the party committee's role of guarantor and supervisor, it is not enough to merely rely on good personal relations between the two people, and it is also imperative to establish and perfect the various regulations for the conducting of guaranteeing and supervising. In the process of establishing and perfecting regulations, we should very satisfactorily combine summing up our historical experience and carrying on our fine tradition with continuously carrying out reform and blazing new trails. We should put an end to the practice of having no regulations to follow in doing our work and grasping only the problems that we encounter, and the practice of refusing to follow the regulations that have already been formulated and grasping our work at will.

Judging by the reality in the enterprises in which the experiments have been carried out in Dalian City, the following regulations have mainly been established and perfected in order to facilitate the party committees' guaranteeing and supervising: 1) Study regulations. The basic theory of Marxism is conscientiously studied and so are the party's principles and policies so that the grounds for the guaranteeing and supervising are mastered. 2) Party committee work regulations. The committee mainly studies the way to intensify its work in strengthening party building and its ideological and political work. 3) Regulations concerning listening to the factory director's work reports. The party committee discusses the major issues in the enterprise's work of production, operations, administration, and management and puts forward opinions or suggestions. 4) The information feedback regulations. The party committee does a good job of investigation and study, is consciously informed, and discovers the experience gained from and the problems in the economic activities of the enterprise and is a good advisor for the factory director in making policy decisions. 5) Regulations concerning the party committee secretary participating in the factory affairs meetings and factory management committee meetings presided over the factory director. The party secretary takes part in studying the major issues of the enterprise and helps the factory director make correct policy decisions. 6) Regulations concerning the joint meetings of the leaders of the party organizations, the management, the trade union, and the CYL organizations presided over by the party committee secretary. These meetings enable these leaders to be informed about the situation in various sectors and coordinate the relations between various sectors inside the enterprises. 7) Regulations concerning the heart-to-heart talks between members of the leading groups and democratic life meetings. 8) Regulations concerning strengthening the leadership over the trade union organizations and the workers and staff congress and the establishment of democratic management. 9) Regulations on periodically evaluating and supervising cadres. And 10) Regulations related to the responsibility system geared to the work of grasping party style and discipline and related to the work of heightening the sense of discipline.

In short, by establishing and perfecting full sets of regulations, we will be able to ensure by written regulations the full play of the party committee's role of guarantor and supervisor, give play to the initiative of the three parties, and make them work in coordination and with one heart and one mind for the same goal.

VIII. Methods of Guaranteeing and Supervising

In order to do a good job of guaranteeing and supervising, in addition to establishing and perfecting full sets of feasible regulations, we should adapt ourselves to the new situation and adopt effective methods. First, the party committees should teach party members and staff and workers to obey the command of the factory directors and ensure the fulfillment of the various tasks of the enterprises. Second, they should make deep investigations and studies, manage to consciously provide the upper-level's policies and regulations ralated to the decisionmaking beforehand, reflect the staff's and workers' state of mind, and put forward their suggestions and opinions. In implementing the factory directors' decisions, they should remove the obstacles to the implementation through vigorous ideological and political work and thus smooth the path. After the implementation, they should promptly and satisfactorily solve, through the means of guaranteeing and supervising problems that have cropped up in the economic activities. Third, they should satisfactorily grasp the development of the party organizations themselves and give full play to the party organizations' role as fighting fortresses and the party members' role as pioneers and models. Fourth, they should strengthen their leadership over mass organizations and organize them to play their positive role in implementing the factory directors' policy decisions and ensuring the fulfillment of various tasks. Fifth, they should satisfactorily grasp ideological and political work and give full play to the guarantor role of ideological and political work.

IX. The Principle To Be Followed for Guaranteeing and Supervising

In order to enable the party's work in the enterprises to meet the demands of the new situation and new tasks, we hold that we should follow the following three principles in guaranteeing and supervising:

1. We should adhere to the principle of being subordinate to and serving economic work. The "decision" of the 3d Plenary Session of the 12th CPC Central Committee clearly points out: "During the new period, the party's ideological and organizational work must firmly implement the guiding principle of serving the party's general task and goal and of being carried out closely in the light of the reality of the economic construction and the economic structural reform." In our enterprises, we should do a good job of guaranteeing and supervising around the central task of serving production and operations, enable our ideological and political work to permeate the various spheres and links of the economic activities of the enterprises, and closely combine this work with the economic work. If we deviate from that central task, the guaranteeing and supervising will be work without a foundation.

2. We should adhere to the principle of simultaneously grasping the two civilization. While building a high degree of material civilization, we must strive to build a high degree of socialist spiritual civilization. A

socialist industrial enterprise is assigned the task of building a high degree of socialist spiritual civilization as well as that of building a high degree of material civilization. It should not only create more and better material products for the society, but should also train a generation of new socialist people who have ideals and morality, are educated, and observe discipline. For this purpose, all the leaders and cadres of the party organizations, the management, trade union, and CYL organizations should strive to manage to start from ideological and political work in doing economic work and proceed from economic work in grasping ideological and political work, closely combine the two kinds of work, make each promote the other, and put an end to the long-standing malpractice of separating one from the other.

3. We should adhere to the principle of strengthening the work of the party, the management, and the masses. This means that the party committee's guaranteeing and supervising must be conducive to strengthening the factory director's centralized command over the work of production, operations, administration, and management, to strengthening the party's work in the enterprise, and to strengthening the democratic management of the staff and workers. By so doing, we will strengthen the work of both the party and the management and the masses of staff and workers within the scope of their duties rather than "merely strengthening the work of one sector and weakening the work of the other two sectors.

X. The Major Indicators for Measuring the Results of Guaranteeing and Supervising

In doing our economic work, we should pay attention to economic results and we should do so in the work of guaranteeing and supervising. The work of guaranteeing and supervising should be evaluated comprehensively. We should carry out an all-round and scientific assessment on the thorough implementation of the party line, principles, and policies, the fulfillment of the key tasks of our enterprises; the construction of the two civilizations; and the establishment of new-type relations between the party and the management in the enterprises. We are of the opinion that, concretely speaking, there are at least these indicators: 1) The party organization, the management, and the masses must correct their guiding ideology, heighten their awareness, and transform their ideas, concepts, leadership style, and work methods; 2) the party, the management, and the masses work out three detailed rules and regulations of actions and make clear their respective positions and the roles which they should play in the enterprises. They should divide among themselves their respective duties, limits of authority, and work tasks, and establish a complete set of work systems and order so as to make their work regular, orderly, and systematic; 3) the leading group must meet the requirements of the four transformations. Its members should satisfactorily unite with and have smooth relations with one another and must correctly implement the party line, principles, and policies; state laws, decrees and regulations; and the instructions and decisions of government at higher level; 4) we should improve the ideological and political quality of the ranks of staff and workers, strengthen their sense of responsibility as masters and must fully bring into play the initiative and creativity of the masses of staff and workers in order to ensure the fulfillment of the various tasks of production and operations in our enterprises; 5) the party, the management, and the masses must develop their activities closely around the production and management of enterprise and give full play to their roles and ensure the all-round implementation of the enterprises' policies, the all-round relaization of their goals, and a comparatively great increase in the economic results of the enterprise; and 6) our enterprises simultaneously carry out and achieve good results and continue to score new achievements in their construction of the two civilizations.

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/Article by Jiang Yiwei /5592 0001 5517/, Lin Ling /2651 0407/ and Ji Zhong /4764 0022/: "On Systems of Socialist Enterprise Leadership With Chinese Characteristics"/

/Text/ I. Enterprise Leadership Systems Are an Important Matter in Building Socialism With Chinese Characteristics

1. The "Decision" put forward by the 3d Plenary Session of the 12th CPC Central Committee is a great program for reforming our nation's economic structure and points out a clear direction for building socialism with Chinese characteristics.

The "Decision" clearly points out: "Strengthening the vigor of enterprises is the central link in the reform of the economic structure." At the same time it points out that around this central link, it is necessary to establish the correct relationships between the state and enterprises, and between enterprises and workers. It points out that this is an intrinsic component and basic requirement of the reform of the economic structure which has the urban areas as its focal point.

The enterprise leadership system is the point of contact in the relationship between the state and the enterprises, and in the relationship between the enterprises and workers. It must manifest both the relationship between the state and the enterprises and also the relationship between the enterprises and the workers. Therefore correctly formulating a socialist enterprise leadership system is a matter of basic significance in the overall reform of the economic structure.

2. Enterprises are not only the place where social productive forces can directly bring their roles into play, but are also direct manifestations of the social relations of production, and miniatures of the socioeconomic system. We say that public ownership, distribution according to work, planned management, economic democracy and so on are characteristics of the socialist economy. These characteristics are, in the main, manifested or implemented in enterprises.

An enterprise is not an abstract or vague concept. It is an entity which engages in economic activities. This entity is manifested as a number of people and an amount of materials collected together. If we speak of industrial enterprises, the entity centralizes material factors such as factory buildings, machinery, new and semifinished materials, finished products and semifinished products. At the same time, it centralizes a number of people, including the enterprises' production laborers and the owners of the enterprises' means of production. These people form definite relations of production, and the enterprise leadership system manifests, in a centralized way, these relations of production. Because socioeconomic systems differ and economic system models also differ, enterprise leadership systems are also different.

3. In enterprises' relations of production, who is the main part of the enterprise? Who is to arrange the means of production in enterprises and take charge in production operations? These are basic questions in deciding on the enterprise leadership system.

In capitalist enterprises, the owners of the means of production (the capitalists in monopoly capital operations and shareholders, or the boards of directors which represent the shareholders, in operations with pooled capital) are also the main part of the enterprise. At the same time, they also arrange the means of production and are decisionmakers in terms of production operations. In such capitalist enterprises, laborers are but employees of the capitalists. They are the targets of exchange at equal value between capital and labor, and are the objects of the enterprise. The capitalist enterprise leadership system which is established on the base of private ownership of the means of production, is inevitably manifested as control of the laborers by the owners of the means of production. Although some capitalist enterprises, in order to alleviate class contradictions adopt methods such as "workers becoming shareholders," "workers participating in management" and so on, these methods cannot the real position of laborers whereby they are exploited and controlled.

4. Socialism implements public ownership, and gets rid of the relationship whereby man exploits man and laborers become the masters of the means of production. This thereby brings about a basic change in the position of laborers. However, public ownership has the two different forms of whole-people ownership and collective ownership. Whole-people ownership enterprises, under different economic systems, also have different management forms, while the positions and roles of laborers within enterprises differ greatly.

In collective enterprises which are worthy of the name, the staff and workers are production laborers and also direct owners of the means of production. Thus, staff and workers are the main part of the enterprises and at the same time are the arrangers of the means of production and decisionmakers in terms of production operations. This manifests the direct linkage of laborers and the means of production.

The means of production in enterprises under whole-people ownership are owned by the whole people, and the state represents the whole people in exercising ownership of the means of production. Staff and workers in the enterprises are part of the whole people and so, seen overall, they are the masters of the enterprise's means of production. But as to the specific situation of the enterprise, are they the main part of the enterprise? How much power do they have in terms of arranging the enterprise's mean's of production? How much decisionmaking power do they have in terms of the enterprise's production operations? Different economic system models adopt different forms and these are manifested in different enterprise leadership systems.

II. Different Economic System Models and Different Enterprise Leadership Systems

5. The socialist system has two very basic characteristics. First, it has public ownership of the means of production and thereby changes the phenomenon under the capitalist system whereby things (capital) control man (laborers) and man is exploited, to a system whereby men (laborers), control things (the means of production) and where thereby the laborers' enthusiasm, motivation and creativity are fully brought into play. This is a basic standpoint which shows socialism's superiority to capitalism. The second is that, on the basis of public ownership, the economic activities of the whole society are developed in a planned and proportional way. This thereby overcomes the situation in capitalist society whereby production is anarchic.

In socialist practice, because the degree to which the above-mentioned two superiorities are brought into play is different, and the forms by which effective combination of the unitary nature of macroeconomic control and the vigorous nature of the microeconomy is achieved are different, it gives rise to different socioeconomic systems and different enterprise leadership systems.

There are two socialist economic system models which are of a representative nature: One is the Soviet Union model of unified state control, characterized by centralized power and the second is the Yugoslavian model which stresses enterprise autonomy and is characterized by decentralized power. Both of the models have their advantageous and disadvantageous points.

6. The characteristics of the Soviet Union model is that the centralized and unified nature of the socialist economy is stressed. By proceeding from this base, it forms an economic system with logical internal connections, and from this derives its enterprise leadership system. The sequence of logic of this system is generally as follows:

The overall national economy is a unified economic entity;

Products produced are for satisfying one's own needs. Thus, they are not commodities and the commodity economy does not exist;

The state uses mandatory planned material targets in organizing overall national economic activities;

Whole-people ownership is the highest form of public ownership;

Ownership cannot be separated from the right of operation. The means of production in enterprises under whole-people ownership are owned by the state and the enterprises are "state-owned and state-operated";

Enterprises are appendages of state administrative organs and, as government and enterprise functions are not separated, the state directly operates and manages enterprises;

The tasks of enterprises are handed down by the state in a unified way, products are allocated by the state in a unified way and the state is responsible in a unified way for profits and losses;

The staff and workers of enterprises are state employees and are deployed in a unified way by the state;

Allocation is carried out for individual staff and workers on the basis of distribution according to work, in accordance with unified state regulations, but this is not completely or directly linked up with the economic results of the enterprises;

The directors (or managers) of enterprises are appointed and dismissed by the state and they represent the state in managing enterprises;

Within enterprises, there is the "system of one-man leadership" and all power rests with the director (or manager).

Although our nation's original economic system differed in some respects from the model detailed above, basically it adopted this model. The 3d Plenary Session of the 12th CPC Central Committee pointed out: "The major defects in this model are that enterprises are appendages of state power and no clear distinction has been drawn between the functions of the government and those of the enterprise; barriers exist between different departments and regions; the state has exercised excessive and rigid control over enterprises; no adequate importance has been given to commodity production, the law of value and the regulatory role of the market; and there is absolute egalitarianism in distribution. This has resulted in enterprises lacking the necessary decisionmaking powers and the practice of "eating from the same big pot" prevailing in the relationship between the enterprises and the state and between staff and workers and their enterprises. The enthusiasm, initiative and creativity of enterprises and staff and workers have, as a result, been seriously dampened and the socialist economy is bereft of much of the vitality it should possess."

7. The characteristic of the Yugoslavian model is that it stresses the democracy of the socialist economy and has instituted worker autonomy. This has also formed an economic system with logical internal connections. It completely negates the Soviet Union model. They believe:

The overall national economy is a labor combination;

Groups of combined labor have complete independence and engage in commodity production and exchange;

State planning is only for guidance. Enterprises have autonomy in their operations and are solely responsible for their own profits and losses;

They completely reject the system of whole-people ownership and institute social ownership systems which differ from whole-people ownership and also differ from collective ownership systems;

Ownership and the right of operation can be separated, whereby there is social ownership, but operation by the enterprise;

The workers' committees are the highest organs of power in the enterprises. Government and enterprise ufnctions are completely separate and the state cannot interfere in the production operations of enterprises;

An enterprise's director (manager) is appointed by the workers' committee and is responsible to the workers' committee;

Within the enterprises there are various levels of democratic rule.

The Yugoslavian model has achieved rich experiences in developing the democracy of the socialist economy and in motivating the enthusiasm of the laborers. In economic development it has also realized great achievements. In recent years, the Yugoslav economy has experienced great difficulties. The reasons for this are many, but an important one has been faults in strategic decisionmaking. Another important reason is that in the system, enterprise autonomy has developed into social autonomy, and this has weakened effective federal macroeconomic control, resulting in serious local decentralism.

8. The task in the reform of our economic system is, by proceeding from China's actual conditions, to link up the basic principles of Marxism with China's actual situation and establish socialism with Chinese characteristics. In respect of our nation's economic structural reforms, the 3d Plenary Session of the 12th CPC Central Committee put forward a series of principles with both theoretical and practical significance. The major principles are:

The socialist economy is a planned, socialist commodity economy;

Enterprises are relatively independent economic entities. They are socialist commodity producers and operators which are independent in their operations and solely responsible for their own profits and losses;

Enterprises have the capacity to transform and develop themselves and act as legal persons with certain rights and duties;

Enterprises' ownership and operating rights can be appropriately separated;

Government and enterprise functions are to be separated and enterprise autonomy is to be expanded;

The position of workers as masters of their enterprise is guaranteed;

Diverse economic responsibility systems with the contract system as their main part are to be established;

Director (manager) responsibility systems are to be established so that in the enterprises the authority of the leaders is unified with the position of the labroers as masters, and with the motivation and creativity of the laborers;

And so on.

This series of important principles sets the standards upon which we are to formulate our nation's socialist enterprise (here, mainly referring to whole-people ownership enterprises) leadership system. We must, in accordance with these standards, make specific stipulations which have our nation's characteristics and logical internal connections, in respect of our nation's enterprise leadership systems.

III. The Relationship Between the State and Enterprises

9. If we are to establish a correct enterprise leadership system, we must first clarify the nature of enterprises and the correct relationship between the state and enterprises.

The 3d Plenary Session of the 12th CPC Central Committee made clear that our nation's whole-people ownership enterprises are relatively independent commodity producers and operators. They are different from both the Soviet Union model, whereby they are appendages of administrative organs, and from the Yugoslavian model whereby they are completely autonomous. Our model is: the means of production in whole-people ownership enterprises are owned by the whole people, and the state controls the right of ownership. At the same time, the right of ownership and the right of operation are appropriately separated, while state organs, through planning and economic, administrative and legal measures exercise necessary management, inspection and guidance over the enterprise. However, they do not directly operate or manage the enterprises. Thus, the enterprises become economic entities which are independent in their operations and solely responsible for their own profits and losses, and which have the capacity to transform and develop themselves

10. In accordance with the principle of separating ownership rights and operating rights and separating government and enterprise functions, state organs must streamline administration and institute decentralization. This produces two specific problems: 1. Which administrative powers should be handed down and which should be retained? 2. Who should exercise the right of autonomy in enterprises?

When the ownership of enterprises' means of production is controlled by the state, it cannot be decentralized. Enterprises' major operational decision-making, including the direction of the enterprise's production operations; the opening of an enterprise; the closing down, stoppage, merger, conversion and shifting of enterprises; important technological transformation and rebuilding of enterprises; the appointment and dismissal of major leaders in the enterprise; and so on, still must be decided by the government, which controls the right of ownership of the means of production. However, the normal operational decisionmaking and management power in respect of an enterprise should be exercised completely by the enterprise, and the enterprise should be responsible for the results of their operations and for their profits and losses.

Now, what needs to be further explored is: Who is going to exercise the decisionmaking power and management autonomy handed down to enterprises? Who is going to take on the responsibility the enterprise accepts for its operational results and profits and losses? Related to this, who will be the enterprises' legal person? Who will shoulder the enterprises' rights and obligations as set down in the law? These all touch on a basic question--in the end, who is the main part of an enterprise under whole-people ownership?

In capitalist enterprise established on the basis of private ownership, the owners (monopoly capitalists and shareholders in pooled-capital operations) of the means of production (capital) are the main part of the enterprise and are also the legal persons of the enterprise. The chairman of the board of directors or the director (manager) are only representatives of the legal person.

In a socialist collective enterprise, the owners of the means of production and the production operators are the same. Here, all staff and workers, as the owners of the means of production, are the main part of the enterprise. They are also the legal person of the enterprise, while the factory director is the representative of the legal person.

In an enterprise owned by the whole people, the means of production are controlled by the state. If we also take the owners of the means of production as the main part, then the state is the main part of the enterprise, and it follows that the enterprise should be an appendage of a state administrative organ. It is also natural that a director (manager) who is appointed by the state, represents the state in managing the enterprise, and takes on the rights and responsibilities of the enterprise. In this situation, the state is the legal person and the factory director is the representative of the legal person. The corollary of this is that responsibility for the profits and losses of the enterprise will naturally be borne by the main part of the enterprise--the state. This will inevitably lead back on to the old road where the state directly operated and managed enterprises. Thus, what is referred to as expanding the autonomy of enterprises is, like some reforms in the Soviet Union, really only an expansion of operational autonomy, not an expansion of enterprise autonomy.

The 3d Plenary Session of the 12th CPC Central Committee particularly stressed the protection of the laborers position as masters in enterprises. On the basis of this principle, we believed that an enterprise's day-to-day decisionmaking and management power can only be exercised by the whole body of workers in an enterprise (including both physical laborers and mental laborers). That is to say, the state should hand all of an enterprise's means of production over to the whole body of workers within the enterprise, which would then be responsible for operations. The laborers will thus take responsibility for operational results and profits or losses. The whole body of staff and workers will be the legal person, and the factory director (manager) will represent the legal person.

Whole-people ownership enterprises are "state-owned" enterprises and in the past were directly operated by the state. It was thus customary to refer to them as "state-run" enterprises. In future, apart from a small number of enterprises (such as the railways) which must remain "state-owned and state-run," the majority of enterprises should have "whole-people ownership and collective operations" or, in short, they should be "state-owned and collectively-run." Also, a small number of small enterprises can be handed over to collectives or individuals for contracted or leased operations. It is also possible to adopt compensated transfer methods and change such enterprises into collectively-owned enterprises.

1. In clarifying the relationship between the state and enterprises, it is also necessary to decide organizationally on who is going to represent the state in managing state-owned enterprises.

In managing the economy, a socialist state, apart from having the function of macroeconomic planning and controlling the national economy, also has certain management functions in respect of various types of enterprises (including whole-people, collectively and individually-owned enterprises, as well as foreign-owned enterprises). These functions are carried out through the comprehensive economic departments and industrial management departments. However, because the ownership of the means of production in whole-people ownership enterprises are controlled by the state, apart from general management functions, the state must also carry out a number of special management functions in respect of these whole-people ownership enterprises. These functions include the management and supervision of enterprise funds, decisionmaking in respect of the direction of the enterprises' operations and important construction, the appointment and dismissal of enterprise leaders, and so on. These special management functions are carried out by organs, established by the state and responsible for enterprises, as representatives of the state. Thus, in terms of the ownership rights relationship, the responsible organ and the whole-people ownership enterprise have a relationship of leader and led, manager and managed. However, this leadership and management can only be exercised in accordance with the principle of separation of government and enterprise functions, and exercised externally from the enterprise. It cannot interfere in the "internal affairs" of the enterprise.

In order to prevent enterprises from acting in ways which will harm the state's interests, is it necessary to station state representatives in enterprises to carry out supervision from within the enterprises? We believe that it will not be necessary. Under the condition of implementing the principle of appropriate separation between ownership and operating rights, the enterprise's upper-level responsible departments will represent the state and will carry out supervision of the enterprise. This is a responsibility and a power given to it by the law. At the same time, financial, taxation, materials, pricing, banking, auditing and such state organs all have the authority, within the limits of their own jurisdiction, to inspect and supervise the activities of enterprises. In addition, enterprises as legal persons must take legal responsibility for the results of those of their actions which are illegal. If a further state representative is sent to be stationed in the factory to carry out supervision, it will be inevitable that we will again follow the old road where there is interference in the daily production operations of the enterprises, which will harm the autonomy of enterprises. As to the internal supervision of enterprises, we should fully bring into play the guaranteeing and supervisory role of trade unions and other mass organizations. Sending additional state representatives to be stationed in factories will be disadvantageous to bringing into play the role of the party organizations and the supervisory role of the masses.

IV. The Position of the Working Masses Within Enterprises

12. The 3d Plenary Session of the 12th CPC Central Committee pointed out: "The wellspring of vitality of the enterprises lies in the initiative, wisdom and creativity of their workers, both in mental and physical work," and that "In restructuring the urban economy, it is imperative to handle correctly the relationship between the staff and workers, and the enterprise, so that they are the real masters and they can work as such in their jobs. This will arouse their deep interest in the operation and effectiveness of their enterprise, so that their performance is closely linked with their social prestige and material benefits." These above-mentioned principles must be concretely manifested in enterprises' leadership systems.

If we really wish the staff and workers to become masters of their own house, then we must first set down clearly that the main part of a socialist enterprise is the working masses. The entire body of the staff and workers in the enterprise should be the enterprise's legal person, which takes on the legal person's rights and obligations. When enterprise's operational autonomy and responsibility for profits and losses are spoken of, what is being referred to is the autonomy of and responsibility by the whole body of staff and workers. Only after setting down the position of staff and workers as masters of the enterprises will it be possible to "arouse their deep interest in the operation and effectiveness of their enterprise so that their performance is closely linked with their social prestige and material benefits." Thus, in respect of enterprises under whole-people ownership, apart from a small number which must be "state-owned and state-run," the majority should be "state-owned and collectively-run." The staff and workers should exercise their lawfully given decisionmaking power in respect of the enterprises' production operations. They will also take on quite an amount of economic responsibility, which will result in the interests of staff and workers being directly linked with the enterprise's results.

13. Workers' congresses are the main means by which staff and workers exercise their right of democratic management. As in state-owned enterprises the staff and workers of the enterprises must collectively take on responsibility for production operations, the staff workers' congress will inevitably become the organ of power in the enterprise. Within the limits as set down by state laws, it should not only have decisionmaking power in terms of the enterprise's production operations, but should also have legal power in terms of the rules and regulations within the enterprise. It should have the power to select and appoint major leaders within the enterprise, the power to decide on the funds to be retained by the enterprise and the allocation of bonuses to staff and workers, and the power to supervise enterprise leaders. If staff and workers' congresses are only bodies for the enterprises' leaders to consult, only bodies for supervising leading persons and only have a discussion and appraisal role in decisionmaking as it relates to production operations, then staff and workers as masters will be just empty words.

Some comrades say that the staff and workers representatives come from different posts and are not conversant with the whole situation, and thus cannot take correct decisions in respect of the enterprises' production operations. Such statements are not in accord with objective reality. Staff and worker representatives include workers, technicians and managers, who are well-informed about the various aspects of their enterprise. In recent years, the educational standard and political quality of staff and worker representatives have been great improvement. The number of people who are concerned with the enterprises and are good at management and have operational abilities are everincreasing. Such people act only after deliberation and as such have the conditions for putting forward rational proposals and making correct selections in respect of enterprise operational decisionmaking.

Some comrades hold that if enterprise decisionmaking is carried out by the workers' congress, it will affect efficiency and obstruct unified guidance by the factory direct. This is also not in accord with objective reality. Workers' congresses generally will take decisions only in respect of major questions of production operations, and only after carrying out discussions. Such meetings will only be necessary a few times a year and will present no obstructions to the exercise of centralized leadership by the factory director. In fact, the reverse is the case, as decisions taken in respect of important matters within the enterprise, after discussion by the workers' congress, will not only have had the benefit of collective wisdom, but will be able to change the attitude of the workers, which will be of help in motivating the whole factory to implement the decisions taken.

Still other comrades hold that workers' representatives concern themselves with wages, bonuses, material benefits and such personal interests, and have no interest in their enterprise's operational decisionmaking. Such a phenomenon exists, but this does not mean that the masses of staff and workers do not concern themselves with enterprise's operational decisionmaking. On the contrary, it means that this is the result of no one giving the staff and workers' congresses any decisionmaking power in the past, and not linking up the results of enterprises' production operations with the interests of staff and workers. If it is stipulated that staff and workers' congresses only have decisionmaking power in respect of production operations, then essentially it will lead to staff and workers only concerning themselves with the allocation of benefits. They will not concern themselves with the improvement of production operations or the development of the enterprise, which will in turn lead to the employee ideology whereby they only vie for personal benefits. Only by allowing staff and workers to have decisionmaking power in respect of their enterprise's production operations, and to take on responsibility for the results of production operations will it be possible to truly arouse the working masses' sense of responsibility as masters.

14. Whether staff and workers are truly able to become the main part and the legal person of enterprises, and whether they can collectively take on the powers and obligations of the enterprise is related to the enterprises' labor systems. Some comrades advocate that, in order to break the "iron rice bowl" it is necessary to implement "contract systems" for enterprises' staff and workers. This sort of "employee system" is contradictory to the above-stated

position of staff and workers in enterprises. If all of the staff and workers are the second party in the contract and the factory director is the first party, the factory director will be the main part of the enterprise and the whole body of staff and workers would be the main part of the enterprise and the whole body of staff and workers would be the secondary part of the enterprise, which will objectively give rise to an employee relationship, and at the very least, there will be the influence of an employee concept among the workers, which is very difficult to overcome. The comrades who advocate the contract system may explain that the first party need not be the factory director, but rather can be the enterprise. We have said above that the enterprise is not a vague and general concept, but a collection of a number of people and an amount of materials. A contract is a charter between persons. It cannot be a charter between persons and things. If the second party is the staff and workers, who is the first party? It can only be the factory director.

V. The Nature of Factory Director Responsibility Systems

15. The 3d Plenary Session of the 12th CPC Central Committee pointed out: "Modern enterprises must have centralized and unified leadership and production guidance, and must have a high degree of strict labor discipline. Because our modern enterprises are socialist, when implementing this centralized leadership and strict discipline, we must persist in guaranteeing the right of the vast masses of staff and workers and their elected representatives to participate in the enterprises' democratic management. Under socialist conditions, the authority of enterprises leaders forms a unity with the position of the laborers as masters, and a unity with the motivation and creativity of the laborers. This unity is a necessary condition for being able to correctly and effectively bring the laborers' enthusiasm into play."

The organizational realization of this unity requires the establishment in enterprises of a leadership system which is both democratic and centralized. That is to say, it is necessary to establish factory director responsibility systems on the basis of democratic management. On important questions, there should be democratic decisionmaking, while in day-to-day production operations, there should be a higher decree of centralized, unified guidance.

16. The means of production in whole-people ownership enterprises are controlled by the state. In respect of the enterprises, the state has both the ordinary function by which organs of state power manage economic organs, as well as the function of owner managing operations. As to what position and what status the factory director (manager) holds in this relationship, has great significance in the formulation of an enterprise leadership system.

If whole-people ownership enterprise are "state-owned and state-operated," and the state directly operates and manages the enterprise, the status of the factory director will inevitably be that of state representative, and naturally will be the main part of the enterprise and the sole legal person of the enterprise. Under this system, the factory director can listen to and respect the ideas of the masses of staff and workers, and accept the criticism and supervision of the staff and workers. However, decisions in respect of the enterprises' production operations are taken by the factory director, and allowing the masses of staff and workers to participate to some degree in management, is only a mass line work method of the factory director. The "one-man leadership system" implemented in Soviet Union enterprises is basically of this type.

If whole-people ownership enterprises are "state-owned and collectively-operated" and the state gives the state-owned means of production to the whole-body of staff and workers who will then be responsible for production operations, then the main part and legal person of the enterprise will be the staff and workers of that enterprise. The factory director will be the representative of the legal person, will represent the whole body of staff and workers in operating and managing the enterprise and will also be responsible to the state. Under this precondition, the enterprise leadership system will inevitably be manifested as a democratic centralist system, which unifies the authority of the enterprise leadership with the position of the laborers as masters.

17. Is it possible to establish a system whereby the factory director has a dual status--where he represents the state in managing the enterprise and is responsible to the state, and represents the staff and workers and is responsible to the staff and workers? Seen from the legal angle, this type of double function is contradictory with the definition of a legal person. As an enterprise must have a legal person who has both rights and responsibilities, it must first be clearly set down who the legal person is, and who is going to concretely undertake the rights and obligations as stipulated by law. The law does not allow a double legal person or double legal person representation. In such a situation, if it is clearly set down that the collective staff and workers are the legal person, and the factory director is the legal person's representative, then the factory director is naturally the representative of the staff and workers. If the enterprise is directly operated and managed by the state, the state is the legal person and the factory director is the representative of the legal person. Thus, the responsibility for whether an enterprise is operated well or poorly, can be taken only by the state, or by the representative of the state, the factory director. Some comrades say that the legal person is neither the staff and workers nor the state, but the enterprise. We believe that abstractly saying that the enterprise is the legal person has no essential meaning, as it is impossible for this abstract "enterprise" to take on the rights and obligations provided by law.

18. A factory director giving a double status is unjustifiable in law. But the factory director, as a representative of the legal person has a double function. He represents the legal person in enjoying the rights of the enterprises and also represents the legal person in taking on the obligations of the enterprise. If he acts in a way which will harm the state's interests, then he is violating the obligations he should meet. This double function essentially manifests his representing both the interests of the enterprise and staff and workers and the interests of the state.

19. As the state has ownership rights in respect of whole-people ownership enterprises, it can implement a leadership system whereby the factory director

is subject ot the double restrictions of both the upper-level responsible organ and the staff and workers, a system in which the upper-level responsible organ is the main part.

The factory director can be elected, recommended or engaged by the staff and workers congress, but this must be reported for appraisal and approval by the responsible organ. Or else, the director can be recommended or appointed by the upper-level responsible organ, but after working for a short time (for example, 6 months) in the enterprise, he would have to be confirmed by the workers' congress.

The factory director should have a set term of office. If, during the term of office, the staff and workers' congress feels that the factory director is not competent, it can request the upper-level to replace him. However, they must observe the decision of the upper-level. During the term of office, the upper level cannot arbitrarily transfer the factory director. If it is necessary to transfer him, the approval of the staff and workers' congress must be obtained.

As to decisionmaking in respect of enterprise production operations, on the one hand it cannot go against the operational direction as stipulated by the upper-level responsible organ, and must carry out the mandatory tasks handed down by the responsible organ. On the other hand, within enterprises there should be democratic decisionmaking and centralized guidance. If there is a serious difference of views between a factory director and the staff and workers' congress in respect of an important matter, it can be requested that the staff and workers' congress hold another meeting. If unity still cannot be achieved, the factory director will have the power to temporarily fail to implement the decision of the staff and workers' congress, and will report the matter to the higher-level organ for adjudication. Both the staff and workers' congress and the factory director must implement the upper level's decision.

20. While important production operation decisions are to be taken democratically by the staff and workers' congress, day-to-day operations management and production guidance will be exercised by the factory director through centralized guidance. All departments and all staff members and workers must implement the orders issued by the factory director.

Under the leadership of the factory director, it is possible to establish a management committee, a factory affairs committee or other such organizations. However, these organizations will only be the factory directors' work organs or advice organs and will not take decisions. Matters discussed will be decided on by the factory director and orders for implementation will be issued under the factory director's name.

The relationship between the factory director and the deputy factory director and other leading cadres in the factory will be relationship of leader and led. They will be appointed and dismissed by the factory director, or else he will put names to the staff and workers' congress for discussion and they will be appointed and dismissed by the upper-level responsible organ.

All of the administrative organs within the enterprise, and their responsible persons will be under the guieance of the factory director. In accordance with the principle of graded management, the lower levels will listen to the orders of the upper levels and the lower levels will be responsible to the upper levels. The lower levels' responsible persons will be appointed and dismissed by the upper-levels' responsible persons.

The enterprise will form a complete entity. Staff and workers' congresses at levels other than that of the staff and workers' congress of the entire factory will not be organs of power. They will not be organs of democratic consultation and supervision for the factory director and leaders at various levels, so that a system of centralized, unified guidance from top to bottom within the enterprise can be safeguarded.

VI. The Role of Party Groups Within Enterprises

21. Upholding the leadership of the party is the basic principle to which a socialist country must adhere in all its undertakings. Only if a socialist enterprise upholds the leadership of the party will it be possible to guarantee the socialist orientation of that enterprise.

Party groups within enterprises are the grassroots organizations of the party, and they play an important role in party leadership of enterprises. However, the party's leadership of enterprises is not restricted to the leadership of party groups within the enterprises. The principles and policies formulated by the party Central Committee which are handed down and implemented level by level through the central and local administrative systems, are an important avenue for party leadership of enterprises. Thus, the leadership of enterprises by upper-level responsible organs is not only manifested in party leadership. It should be seen as a level of party leadership higher than that of the party groups within enterprises.

22. The task of enterprise party groups within the enterprise is mainly the key function of providing political and ideological leadership. Strengthening political and ideological work within the enterprise is the primary task of an enterprise's party gorup. The enterprise party groups must do well both organizationally and ideologically, educate all party members and, through party members and groups such as the trade unions and Chinese Communist Youth League, organize and spur on the whole body of staff and workers to seriously study and implement the party's principles and policies in all respects.

It is absolutely necessary for enterprise party groups to implement the principle of separation of party and government work, and change the former methods whereby the party replaced the government and directly interferred in enterprise production and administration work. However, enterprise party groups certainly cannot disregard the enterprises' production and administrative work. Rather, on the basis of deep investigation and study, they should carry out their important guaranteeing and supervisory roles.

What is referred to as guaranteeing and supervising does not mean that the completion of the production tasks should be guaranteed by party organs.

Rather, if production operation decisionmaking in enterprises accords with party and state policies, the party groups should motivate all party members to spur on the whole body of staff and workers in the firm implementation of the decisions. If actions which go against party and state principles and policies are discovered, then the party groups should offer criticism and supervise their correction.

The enterprise party groups, in law, do not have any jurisdiction relationship in respect of the enterprises' administrative and leadership systems which have the factory director as their head, or in respect of the staff and workers' congresses. Thus, they cannot directly interfere in their day-to-day activities. However, the party groups must bring into play their roles in respect of leading ideological and political work. As to measures and actions which violate party and state principles and policies, the party group can make serious criticisms and adopt measures to redress the violations. If differences occur between the party group and the factory directors or staff and workers' congresses, they must be reported in a timely way to the higher-level responsible ortan and higher-level party group. The matter will then be adjudicated by the higher-level responsible organ and the higher-level party group through unified coordination.

23. In order to bring into play the enterprise party groups' guaranteeing and supervisory roles, the party organs must strengthen policy research and investigative research into the situation of their enterprises. The responsible people of party groups at various levels can attend all levels of meetings relating to production and administration.

Enterprise party groups must positively support the right of staff and workers' congresses to carry out democratic management, and support the authority of factory directors and responsible persons at various levels to carry out administrative guidance. They must also educate the whole body of party members and the whole body of staff and workers to observe labor discipline and subordinate themselves to administrative directions in a model way.

In staff and workers' congresses, the enterprise party groups must report on the political situation and relevant principles and policies and do relevant propaganda work. They must guide the staff and workers' congresses in supporting the socialist orientation, in concerning themselves with the overall interests of the state and in correctly handling the relationship between the interests of the state, the enterprises and the staff and workers.

24. In order to better bring into play the guaranteeing and supervisory roles of the enterprise party groups, a possible consideration may be to pay the wages of those party group cadres who have been released from production, from party funds. If party funds are insufficient, the state can provide supplementary amounts. Their wage levels and bonuses will be decided on by the higher-level party committee. In this way, party cadres will stand detached from their enterprises and this will be of benefit in maintaining the party stand and more objectively carrying out their guaranteeing and supervisory roles.

VII. The Role of Trade Union Organizations in Enterprises

25. The important task of trade union organizations in the new period is to educate the vast masses of staff and workers in supporting the socialist orientation, to promote reform, to realize the four modernizations and to struggle to build a socialist nation with a high degree of civiliazaton. A high degree of democracy includes both political democracy and economic democracy. Economic democracy is the basis of political democracy. The essence of our nation's reform of the economic structure is the further development and improvement of socialist economic democracy. In the new historical period, the trade union organizations should, under the leadership of the party, educate and guide staff members and workers to participate in various levels of economic democratic management, to guarantee the democratic rights of staff and workers and to bring into play the role of the masses of staff and workers as masters.

In order to develop economic democracy, the enterprises' trade union organizations must take the promotion of democratic management in enterprises as their major task. The trade union organizations cannot replace staff and workers' congresses, but it is appropriate that they be work organs for staff and workers' congresses. If the staff and workers' representatives elect the enterprise trade union chairman as the chairman of the staff and workers' congress, it will be of benefit in bringing into play the role of the trade union in promoting democratic management by staff and workers.

26. Enterprise trade union organizations are the grassroots-level organizations of the All-China Federation of Trade Unions. There is an essential difference between these organizations and the staff and workers' congresses. A staff and workers' congress is an organization of a single enterprise, and it represents only the staff and workers of that enterprise. Although members of the enterprise trade union are also staff members and workers of that enterprise, because the enterprise trade union is a grassroots-level unit of the All-China Federation of Trade Unions, it must implement decisions from the upper-level trade union, and has the duty of protecting the overall interests of the working class. The enterprise staff and workers' congress must also safeguard the overall and long-term interests of the working class, but in some situations, the staff and workers' congress may proceed from partial interests, which produces certain contradictions. In such a situation, the enterprise's trade union must maintain its own independent position and will enjoy the powers given to trade union organizations by state laws. For example, enterprise trade unions have the power to supervise the enterprises' labor protection and production safety. Also, the discharging of staff members and workers must be agreed to by the labor union, and so on. Although these questions are decided on by the staff and workers' congress, they must also have the agreement of the trade union organization.

27. In order to better bring into play the role of enterprise trade union organizations, the state should make stipulations in respect of the sources of trade unions' funds. The wages and bonuses of leading cadres in enterprise trade unions should be decided upon by the higher-level trade union organization, so that the trade union organization can stand apart from the enterprise and be more independent.

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CSO: 4006/756

BANK OF CHINA PRESIDENT ON EXPANDING BANK'S ROLE

HK070723 Hong Kong WEN WEI PO in Chinese 5 Feb 86 p 2

[Correspondent's dispatch: "Bank of China To Expand Banking Business"]

[Text] Beijing--Wang Deyan, president of the Bank of China, said in an article carried by a finance magazine published here that the Bank of China will run itself as "a bank taking deposits and giving loans with emphasis on giving loans" instead of mainly taking deposits, as it did during the Sixth 5-Year Plan period, in the international financial market. He added: By 1990, with its assets and total liabilities counted, the Bank of China will possibly rank among the 20 biggest banks in the world; as far as the scope of its business is concerned, the Bank of China will then not be inferior to the world's 10 biggest banks in terms of its role in the national economy as well as its reputation and influence in the international financial circles.

Wang Deyan said in his article: Instead of mainly doing international settlements business as in the past, the Bank of China will develop into a "multi functional" foreign exchange bank mainly dealing with commercial banking and also various other businesses regarding investment, leasing, trust and consultancy. In the international financial market, the Bank of China will change into "a bank taking deposits and giving loans with emphasis on giving loans" during the Seventh 5-Year Plan period. This change has already attracted the attention of the foreign governments and the international financial circles.

He expected that during the Seventh 5-Year Plan period, the Bank of China will increase the volume of loans of various types and the number of financial capital varieties, so that its money will be bound to be used in various ways. To help domestic enterprises undertake foreign economic activities, the Bank of China has started to serve as financial consultant to these enterprises and to study and carry out a package fund-raising plan, and will develop its business in this connection. To attain the above-mentioned goals and meet the needs of development, Wang Deyan said, it is necessary to intensively train and bring up a large group of foreign exchange personnel and, in addition, to step up international financial market studies and to provide the units engaged in foreign trade and Chinese-foreign economic cooperation with information on ventures in exchange rates, trends in bank rates, and channels and terms of international credits.

Wang Deyan added: The Bank of China also should concretely review its long-term development plans at home and abroad and its management system and work out effective credit plans and management methods; it should formulate a policy on interest rates for loans in Renminbi and foreign currencies, including loans given to enterprises operated with foreign capital, overseas Chinese capital, or Hong Kong and Macao capital, and work out methods of supervising the giving of loans; it should study problems regarding joint ventures and foreign exchange balances in a locality; it should study ways to cooperate with enterprise at home to earn foreign exchange; it should study ways to use the economic levers to achieve macroeconomic balance; and it should study problems regarding the trends of change in the financial systems of the special economic zones and the cities open to the outside world.

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CSO: 4006/759

SHANGHAI BANK TO ISSUE CASHIER'S CHECKS

OW150846 Beijing XINHUA in English 0822 GMT 15 Feb 86

[Text] Shanghai, 15 Feb (XINHUA)--Banks in Shanghai, China's largest industrial and commercial center, on 1 April will become the first in the country to issue cashier's checks.

Officials of the local branch of the People's Bank of China said today individuals and enterprises will be able to buy the checks--promises of payment guarantees by the banks' own funds--to transfer money from one account to another or to withdraw cash.

The checks must be paid for in cash, the bank said, and must be for at least 100 yuan. The banks will pay no interest on money paid for the checks, but they will not replace them if they are lost. The checks will be valid for 20 days.

Branches of the industrial and commercial bank, the agricultural bank, the Bank of China and the construction bank will also issue the checks, beginning in April.

/9274
CSO: 4020/227

COURSE OF PRICING SINCE FOUNDING OF PRC REVIEWED

Beijing JINGJI RIBAO in Chinese 30 Aug 85 p 3

[Article by Lu Fengxia [4151 7685 7209]: "The Course of Pricing in New China"]

[Text] Pricing is an important lever of the national economy. It has a major regulatory effect on production, circulation, distribution and consumption, and is closely linked with the lives of the people. Since the founding of the People's Republic of China 30 years ago our country has preliminarily established a socialist price control system and has regulated many irrational commodity prices one after another. At the same time it has preserved the basic stability of market prices. The general level of social commodity retail prices rose 55.6 percent over the period from 1950 to 1983; an average increase of 1.38 percent yearly. In the same period the price differences in the Federal Republic of Germany, the United States, Japan and other capitalist countries had risen as much as three to nine times, forming a sharp contrast.

Our nation's prices have experienced the development of every historical period. They may roughly be divided into five stages:

1. The Period of National Economic Recovery

Due to the inflationary policies carried out by the Kuomingtang reactionaries the issuance of currency reached astronomical figures, which greatly damaged the economy. When new China was established, the pricing work was confronted with a very grim situation: there was a severe shortage of commodities in the marketplace and prices were skyrocketing; the masses yearned for stable prices and the restoration of an orderly marketplace. In March 1950, the Party Central Committee issued "Resolutions Concerning the Unification of National Financial and Economic Work." It demanded unified national financial revenues and expenditures, a unified national distribution of materials, unified management of national cash reserves, a reduction of deficits and the withdrawal of large amounts of currency from circulation. Finally, inflation was curbed, prices were able to fall again, market prices tended to be stable and thus highly favorable conditions for the construction of a large-scale socialist economy were created.

2. The Period of the First Five-Year Plan

In 1952 the Party Central Committee proposed a general line for the transition period. In order to implement thoroughly this general line and to promote economic development, state-operated commerce carried out several practices with regard to products of privately owned industrial enterprises. They placed state orders for processed goods, created a state monopoly for purchasing and marketing, appraised and decided the commodity prices suggested by the private industries and limited their profits. They reduced the price differentials between regions, squeezed out privately owned wholesale businesses, approved the sale of goods on a commission basis, stipulated the retail prices and the ratio of differentials between wholesale and retail prices, controlled the volume and profits of privately owned retail businesses, and guided privately owned industry and commerce to accept socialist transformation. At the same time, making grain prices the center, they arranged price parities for agricultural products and raised the purchase prices of some agricultural products. The state began to set unified prices and to implement the monopoly for purchasing and marketing of grain, cotton, cooking oil and other items which are of vital importance to the nation's economy and the people's livelihood. In this period there was an ample supply of goods and the market was stable.

3. The Period of the "Great Leap Forward" and Three Years of Readjustment

From the beginning of 1958, under the guidance of "leftist" ideology, the state paid no attention to economic results in economic construction. With the additional influences of natural disasters and the cessation of Soviet aid, there was a large drop in agricultural production. It caused serious difficulties for the national economy at that time and the supply of commodities was tight. In 1960 the difference between the supplies of market commodities and the purchasing power of social commodities reached 7.48 billion yuan. Saving deposits dropped considerably due to inflation. To reverse the economic situation that was growing more serious daily, the Party Central Committee put forward the policies of "readjustment, consolidation, replenishment and improvement." Beginning in 1961 the prices of 18 kinds of daily necessities were frozen, including grain and cotton, in order to stablilize people's standard of living. At the same time a policy of high prices for some high-grade goods was implemented, and 5 billion yuan was withdrawn from circulation. By 1965 the task of adjusting the national economy had been smoothly accomplished. There was also complete success in stabilizing prices. If the national general retail price index of the previous year is 100, if 1961 would be 116.2, 1962 would be 103.6, 1963 would be 94.1, 1964 would be 96.3 and 1965 would be 97.3

4. The Period of the "Great Cultural Revolution"

The 10-year catastrophe caused production to stagnate, management to become chaotic and price control structures to become paralyzed. In order to stabilize prices and reduce losses, the State Council was compelled to issue notices in 1967 and 1970 and to implement a policy of freezing prices. Under such circumstances freezing prices certainly helped achieve the goal of stabilizing markets and settling society. However, it also limited the lever function of prices, causing more and more irrational problems within production and circulation.

5. The New Period of Construction of Socialist Modernization

The party's 3d Plenary Session of the 11th Central Committee redressed the "leftist" mistakes and enabled our nation to enter a new historical period. The pricing system was also adjusted many times. First, there were fairly large increases in the purchase prices of agricultural products. The purchase prices of agricultural products increased 47.7 percent over the period from 1978 to 1983, arousing the peasant's enthusiasm for production and spurring the development of the village economy. After the purchase prices of agricultural products were raised, the selling prices of eight kinds of nonstaple foods--pork, beef, mutton, eggs, poultry, vegetables and others--experienced increases. And at the same time each worker was given an allowance of 5 yuan every month. It formed an inverted buying and selling situation because the prices of grain, cotton and oil remained unchanged.

In order to adjust the price ratios of products of the mineral excavation, raw materials industries and products of processing industries, the prices of ore, coke, pig iron, steel products, cement and so on have been increased one after another since 1979. The prices of some mechanical and electronic products have been lowered, and the prices of rail and water transport have been adjusted. At the same time, the prices of products of the light and textile industries were adjusted, the prices of leather goods, cigarettes, alcohol and others were increased, while prices of televisions, watches, polyester/cotton cloth and others were lowered. In 1983 the prices of chemical textiles were greatly reduced and cotton fabric prices were increased, solving the long-standing problem of serious overstocks of chemical fabric products.

While reforming the pricing system, initial reforms of the price control structure was also carried out. Many kinds of pricing forms were implemented and the jurisdiction of price control was tentatively transferred to a lower level. Presently reforms that make cities the focal point of the economic system are just now developing in a steady manner. Price reforms are the key to the success or failure of economic reforms. The task of price reform includes two aspects: one is the need to smooth out the pricing system and to adjust unreasonable price ratios, price differences and so forth; a second is the need to reform the price control system and to bring into play the function of market mechanisms. Our nation's prices would genuinely constitute a lever to regulate production, balance supply and demand, guide consumption, promote the development of the national economy and increase economic results.

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CSO: 4006/294

FOREIGN FUNDS USED TO DEVELOP GUANGXI ALUMINIUM MINE

HK121532 Beijing ZHONGGUO XINWEN SHE in Chinese 1429 GMT 31 Jan 86

[Text] Nanning, 31 January (ZHONGUO XINWEN SHE)--At the Guangxi foreign economic and trade conference which ended yesterday, Wei Chunshu, chairman of the people's government of the Guangxi Zhuang Autonomous Region, disclosed: The state has listed the development of Guangxi's Pingguo Aluminium Mine in the Seventh 5-Year Plan and has decided to use foreign funds to develop the mine.

The Guangxi Pingguo Aluminium Mine, which has rich reserves, is situated on the upper reaches of the You Jiang, 6 kilometers from Pingguo County. The mine includes the five mining areas of Nadou, Taiping, Jiaomei, Xinan, and Guohua, which are distributed in a circumference of several hundred kilometers. At present, the verified reserves of the Pingguo Aluminium Mine exceed 0.2 billion tons. The Nadou mining area, which was developed first, has 80 million tons of reserves.

At present, the preparatory work for the development of the Pingguo Aluminium Mine is under way. The location of the first-phase mining area of 4 kilometers has been decided. The mining area will be built along the shore of the You Jiang, which can provide water to the mining area. The You Jiang Bridge which links the five mining areas will be open to traffic in June this year. In order to ensure the electricity supply to the first-phase construction of the mine, the project for the extension of the Laibin Power Station was started last year.

A lot of foreign industrial and commercial people are very interested in the development of the Pingguo Aluminium Mine. Britain, France, Japan, and some other countries have also sent people to investigate the Pingguo Aluminium Mine and hope to invest in the project and jointly develop the Pingguo Aluminium Mine with China.

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CSO: 4006/763

INDUSTRY

REPORT ON PROJECTS TO BOOST TOURISM IN CITIES

OW151108 Beijing XINHUA in English 1044 GMT 15 Feb 86

[Text] Beijing, 15 Feb (XINHUA)--Tourists to Kunming, known as the "Spring City" in southwest China's Yunnan Province, will soon be able to tour the area in a helicopter and see its stone forest at night.

This is part of an ambitious five-year tourist development program aimed at making the scenic city one of Southeast Asia's major tourist centers.

According to the new development program recently begun by the Kunming Government, the city will concentrate its resources on projects that best showcase the natural beauty of the city and provide visitors with access to the outstanding features of its local culture.

These projects include restoration of villages that have preserved local customs but are also open to tourists, recreation areas where tourists can participate in festive rituals of local minority ethnic groups, a center for international fairs and conferences, water sports facilities, a camelia garden and new city sculptures and pleasure boats.

Kunming's history extends more than 2,000 years back to the Dian Kingdom in the 3d century B.C. Its culture blends such ancient civilizations as the Nanchao, Turpan, Dongba and Islam, and its 18 main sightseeing spots feature relics from the Tang, Song, Yuan, Ming and Qing Dynasties (618-1911).

Its southwest China location also makes it a potential base for trips to Tibet and Burma.

Meanwhile, other Chinese cities are also upgrading their tourist facilities.

In Shanghai, where tourism has long been neglected, more streets devoted to sales of local foods and native products will be established and more pleasure boats will be provided for cruises along the Huangpu River.

Tourist routes will be set up to link the municipality's cultural cites, including the home and work places of such figures as the writer Lu Xun, Dr Sun Yat-sen, Soong Ching Ling, Mao Zedong, Zhou Enlai and Chen Yi.

On Hainan Island, the local government will develop tourism mainly in the cities of Sanya and Haikou, while the south coastal areas of the tropical island will be made into centers for winter vacationers.

Last year, 17.83 million foreign visitors (38.8 percent more than in the previous year) toured China. Among their itineraries were spring tours of picturesque Hangzhou City in Zhejiang Province and autumn tours of Beijing, where red maple leaves add to the golden color of palaces.

Visitors to China also made winter tours of the snow and ice lantern festivals in northeast China's Harbin. For warmth, winter travelers visited the 1,500-kilometer Hainan Island coast in Guangdong Province. And in the summer, foreign visitors flocked to the cities of Qingdao and Dalian on China's north coast.

To stimulate faster development of tourism, the country has planned to build or expand 90 airports to make civil aviation more convenient between cities, according to Hu Yizhou, director of the Civil Aviation Administration of China.

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CSO: 4020/225

BUILDING MATERIALS OUTPUT RISES 150 PERCENT

HK150604 Beijing CHINA DAILY in English 15 Feb 86 p 2

[Text] Production in the building materials industry is expected to increase in value by 150 percent over the 10 years from 1980 to 1990 according to the newspaper ECONOMIC INFORMATION.

Production of cement is expected to reach 220 million tons by 1990, double that of 1980, and output of glass will triple. The light building materials industry is predicted to leap forward during the next five years.

As well as increasing production, the industry will place emphasis on improving quality and reducing the cost of raw materials and energy.

With living standards rising, the demand for modern bathroom equipment is increasing. Last year, the country's production of porcelain fitting reached eight million units, of which 2.5 million were produced by large and medium-sized factories and the rest by small local businesses.

The amount of glazed pottery tiles produced last year was enough to cover 40 million square meters of floors and walls.

But the newspaper pointed that that quality of these products was still low. Sanitary equipment, for example, was all produced in the same colour and pattern. The major task of the country's porcelain industry over the next five years was to design and produce functional and attractive products to meet the consumer demand.

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CSO: 4020/225

FAULTY BOLTS HALT WORK ON SECOND STAGE OF BAOSHAN STEEL PLANT

HK181442 Hong Kong WEN WEI PO in Chinese 18 Feb 86 p 1

/"Dispatch" from special correspondent Yao Hsin-pao /1202 2946 0202/: "Work on Second Stage of Baoshan Iron and Steel Plant Recently Forced to Halt"/

/Text/ Work on the second stage of the Baoshan Iron and Steel Plan, a key state constructon project, was temporarily suspended recently. The cause for the stoppage was that eight high-intensity bolts with a diameter of 24 mm snapped or expanded when they were installed.

The director of the Shanghai's Xianfeng Screw Plant producing these high-intensity bolts was dismissed a few days ago. The five certificates of inspection issued to the plant after each consolidation were also recalled by the higher department responsible for the work. The plant's specialized production line was also ordered to stop production for a month and to carry out consolidation.

The suspension of work on the second stage of the Baoshan Iron and Steel Plant reportedly incurred economic losses amounting to more than 1 million yuan. Of the more than 130,000 sets of high-intensity bolts supplied to the Baoshan Iron and Steel Plant, half were without the furnace number of the raw material or were not made with the special steel provided by the steel plant.

The Xianfeng Screw Plant is the only plant in the country specializing in the produciton of high-intensity bolts. In recent years, serious confusion in production, technical management, and the use of materials, as well as the lack of instrument and equipment maintenance, have caused serious quality problems. The 270,000 sets of similar products turned out by the plant since last May have been recalled and the more than 20,000 bolts installed during the second stage of the Baoshan Iron and Steel Plant project have been dismantled. Separate arrangements will be made for them.

/12228
CSO: 4006/754

LIAONING MAPS OUT GOAL FOR METALLURGICAL INDUSTRY

SK190258 Shenyang Liaoning Provincial Service in Mandarin 1030 GMT 18 Feb 86

/Text/ The Liaoning Provincial Metallurgical Industrial Work Conference, which concluded on 18 February, urged the province's metallurgical industry to retain the first place in the nation, the Anshan Iron and Steel Co. to remain the No 1 large metallurgical industrial enterprise in the nation, and the province's local iron and steel industry, which ranks ninth in the country, to win a better place. This is the goal of our province's metallurgical industry for the Seventh 5-Year Plan period.

On the morning of 17 February, Vice Governor Zhu Jiazhen spoke at the conference. After fully affirming the achievements of the province's metallurgical industry scored in the Sixth 5-Year Plan period, he said: In order to ensure that Liaoning's metallurgical industry retains the first place in the country, we should, first of all, make reform a success. We should improve the relations among enterprises through lateral cooperation. We should also gradually reduce or remit the regulatory taxes of enterprises, extensively apply the method of depreciating machines according to their categories, raise the depreciation rate of enterprises, and then enhance the ability of metallurgical industrial enterprises for self-transformation and self-development. Second, we should rely on technical transformation and upgrade its level. We should use high-grade raw materials to produce high-grade products, and use low-grade raw materials to produce good, inexpensive goods. Through reform, technical transformation, and improved management of the entire trade, we should make Liaoning's metallurgical industry retain the first place in the country, and make greater contributions to the four modernizations of the country.

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CSO: 4006/754

BUILDING MATERIAL INDUSTRY MAKES GREAT HEADWAY

OW160245 Beijing Domestic Service in Mandarin 1200 GMT 15 Feb 86

/Text/ China's building material industry made much headway last year. An encouraging situation appeared in which its output, output value and tax payments increased simultaneously. At a new briefing on the building material industry today, a responsible person of the State Administration of Building Materials Industry discussed this situation.

The responsible person said: Last year, China overfulfilled the state plan for all principal products of building materials. The cement output reached 142 million metric tons ranking China first among the world's cement producing nations, and representing a 15.8 percent increase over the previous year. The plate glass output reached 56 million standard boxes, a 16 percent increase over the previous year. The output of other building material products, particularly new building materials, nonmetallic minerals and their products, and inorganic nonmetallic materials, increased by large margins.

Last year, the total output value of all building material industrial departments in the country, excluding rural enterprises, was 34 billion yuan, an 18.5 percent increase over the previous year. The energy consumption of building material production units steadily lowered. Large- and medium-sized enterprises' coal consumption for clinker was reduced by 5.3 kg per metric tons of cement compared with the previous year. Coal consumption was reduced by 0.62 kg per standard box of plate glass compared with the previous year.

The responsible person of the State Administration of Building Materials Industry also pointed out: The rapid development of the building materials industry is due to the implementation of the policy of all people helping to promote building materials production. According to initial statistics, funds used by the state and local units and departments for the development of building materials production last year totaled about 3 billion yuan, including the state investment of 750 million yuan, the provincial, autonomous region, and municipal investments of 860 million yuan, and the investments of more than 1 billion yuan by the State Council's departments concerned and all trades below the county level. This situation, in which state enterprises, collective enterprises, economic associations, and individual households all help promote building materials production by using domestic capital, foreign capital, and joint capital, not only favorably promotes the development of the building materials industry, but also reduces the state's financial burden.

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BRIEFS

GUIZHOU CIVILIAN PRODUCTS--The province's national defense industry vigorously developed production of civilian products in 1985. It produced 408 civilian products and the output value of civilian products reached 463 million yuan in 1985, an increase of 198 million yuan, or 74.1 percent, over 1984, and an alltime high. /Summary/ /Guiyang Guizhou Provincial Service in Mandarin 2300 GMT 12 Feb 86 HK/ 12228

QINGHAI REPORTS INDUSTRIAL PROGRESS, PROBLEMS--Qinghai's industrial production scored initial success in January. Light and heavy industry were better coordinated, registering respective increases of 0.87 percent and 0.76 percent compared with the same month last year. Ten out of 18 major industrial departments and prefectures increased output compared with January 1985. Those registering the biggest increases were the Electric Power Bureau, Haidong Prefecture Commissioner's Office, the National Defense Industry office, Hainan and Haibei autonomous prefectures, and the Labor Reform Bureau. Those showing decreases included the Machine-building Industry Department, Building Materials Bureau, Communications Department, and Haixi Autonomous Prefecture. The current problems in the province's industrial production are: The products of some enterprises do not sell well, resulting in stockpiles of products such as automobiles, hand-guided tractors, and potassium. There is a serious shortage of raw materials. Light industry is short of hides, wool, and aluminum ingots, while heavy industry is short of pig iron, scrap iron and steel, and energy. In addition, due to the late date at which the provincial plan targets were released, difficulties were caused for some enterprises in arranging production. /Excerpts/ /Xining Qinghai Provincial Service in Mandarin 2330 GMT 16 Feb 86 HK/ 12228

LIAONING STEEL OUTPUT--During the Sixth 5-Year Plan period, Liaoning Province produced 46.77 million tons of steel, showing an average annual increase of 1.34 million tons over the Fifth 5-Year Plan period. In 1985 the steel output of the province exceeded 10 million tons for the first time, an increase of 13 percent over 1981. /Summary/ /Shenyang Liaoning Provincial Service in Mandarin 1030 GMT 16 Feb 86 SK/ 12228

CSO: 4006/754

CONSTRUCTION

18 BERTHS PLANNED FOR SHANGHAI PORT BY 1990

OW181633 Beijing XINHUA in English 1447 GMT 18 Feb 86

[Text] Shanghai, 18 Feb (XINHUA)--Shanghai Port, China's largest, will build two loading and unloading operation districts and a coal wharf this year to handle export goods and ease harbor congestion, a port official said today.

The districts--Cuan'gang on the upper reaches of the Huangpu River and Baoshan at the Yangtze River mouth--will include 18 berths, 15 of which will be able to accommodate 10,000-dwt ships.

Upon completion in 1990, they will enable the Shanghai Port to handle an additional 10 million tons of goods.

According to Yan Runtian, director of the Shanghai Port Administration, the Shanghai port handles one-fifth of China's export goods. Last year saw more than 100 foreign trade ships call at the port every day.

The Shanghai port has handled 100 million tons of cargo a year over the past two years. But it still fails to meet the increasing needs of the country's economic development and its foreign trade.

Preparations are under way for building new port districts while expanding and upgrading the existing port facilities, said Yen.

The Shanghai Municipal Government plans to rapidly increase its import of foreign funds to upgrade the city's infrastructure and port facilities.

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CSO: 4020/225

CONSTRUCTION

BRIEFS

ZHEJIANG HOUSING CONSTRUCTION--Zhejiang built housing units equivalent to 25.39 million cubic meters of floorspace during the Sixth 5-Year Plan period, 275 percent of what had been built in the previous 31 years. Average living space for people in cities and towns increased from 5.5 cubic meters at the end 1980 to 6.82 cubic meters at the end 1984. Some 510,000 urban households moved into new houses. /Summary/ /Hangzhou Zhejiang Provincial Service in Mandarin 1000 GMT 7 Feb 86 OW/ 12228

CSO: 4006/754

LABOR AND WAGES

BRIEFS

ZHEJIANG UNEMPLOYMENT SOLUTION--During the Sixth 5-Year Plan, Zhejiang Province helped 561,600 youths in cities and towns find employment. By the end of 1985, the province's unemployment rate had dropped to 1.5 percent from 3.6 percent at the end of 1980. [Excerpts] [Hangzhou Zhejiang Provincial Service in Mandarin 1000 GMT 31 Jan 86 OW] /9274

CSO: 4006/759

HONG KONG STOCK MARKET HAS STRONG SHOWING IN 1985

OW201752 Beijing XINHUA in English 1637 GMT 20 Feb 86

[Text] Hong Kong, 20 Feb (XINHUA)--The Hong Kong stock market's strong showing in 1985, with the Heng Seng Index rose by 46 percent to 1752, has reinforced confidence for 1986, says the Hong Kong Bank's ECONOMIC REPORT today. After three disappointing years between 1982-84, it is estimated that the average earnings growth of the Heng Seng Index constituent stocks in 1985 will be in excess of 20 percent. "Although the economic growth last year was disappointing, the growth in corporate earnings and the recovery of the property sector sustained the strong rise in share prices," says an article in the ECONOMIC REPORT.

Even though the property market has levelled off in recent months, property companies' earnings growth in 1936 is well-underwritten by the high level of presales achieved in 1985. In addition, this is likely to be reinforced by better performance from the banking sector in 1986, the article predicts. Providing that the interest rates remain low, and moderate economic growth can be sustained in 1986, it says, the long-term prospects for the stock market remain intact. In the short term, the article carries on, continuing high liquidity in the monetary sector, plus anticipation of good corporate results for 1985, should underpin sentiment, while speculation over further corporate deals might provide additional stimulus. The article predicts that exceptional trading opportunities may occur if the substantial public issues scheduled for March/April, totalling over 4 billion Hong Kong dollars, succeed in stimulating greater interest in the market.

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CSO: 4020/226

OTHER PRC SUBSIDIARIES CONTEMPLATE DEPOSIT CERTIFICATE ISSUES

HK200927 Hong Kong SOUTH CHINA MORNING POST (BUSINESS NEWS Supplement) in English 20 Feb 86 p 1

[By Cecilia Ko]

[Text] Following the $250 million certificate of deposit [CD] issue by the Bank of Communications, other members of the Bank of China [BOC] group are considering tapping the capital market.

The Bank of Communications issue has shown how Chinese banks can obtain cheaper foreign currency funds through a swap-linked Hong Kong dollar issue.

The bank's assistant general manager, Tang Yu-lap, told BUSINESS NEWS it would convert the $250 million fixed-rate money into U.S. dollar floating-rate funds by means of an interest rate and currency swap arrangement.

As a result, the bank can obtain U.S. dollar money at a cost below the London interbank offered rates, he said.

Bankers are generally agreed that although the BOC group has a substantial Hong Kong dollar deposit base, it needs U.S. dollar funding to finance domestic projects.

The local capital market can therefore provide an additional channel for the Chinese banks to borrow cheaper U.S. money.

Some bankers pointed out that Bank of China is sufficiently highly regarded among international banks to be able to raise fixed rate funds directly in U.S. dollars and then swap into floating rate debts to reduce the cost.

Mr Tang confirmed that the BOC group is exploring different ways of broadening the sources of foreign-currency funds.

BOC President Wang Deyan said at the bank's recent meeting in Beijing that this year the group would make every endeavour to diversify the fund-raising channels.

He emphasized that the bank will increase its foreign currency borrowing at more favourable terms to support China's vast infrastructural and industrial modernization programmes.

Mr Tang said it would therefore not be surprising to find other BOC group members becoming active in the local capital market in the near future.

Banking sources said a number of merchant banks in the Hong Kong dollar paper market are keenly interested in helping the group arrange issues and competition is so stiff that many are prepared to offer BOC members favourable terms to get a mandate.

Mr Tang agreed that due to the shortage of quality loans, many banks were pricing Hong Kong dollar issues aggressively, but he did not consider the bank's $250 million CD "mis-priced."

Lead manager BT Asia had set a fair pricing "at the monent the issue was launched," he said.

It was unfortunate, he added, that sentiment towards Hong Kong dollar CDS had become bearish because of over-supply and speculation as to interest-rate rises, but he believed the fundamentals supporting stable rates remained unchanged and the "indigestion" would soon be adjusted.

Bankers said yesterday that most CDs were traded at a discount in the secondary market. The Bank of Communications CD, although not yet issued, was quoted by some banks in the grey market at a price of 99.65-99.70 percent of its per value.

Some bankers said this was in line with general market movements and did not necessarily mean the underwriters did not support the issue. A few others, however, are less optimistic and believe the underwriters will have to sell at a loss.

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